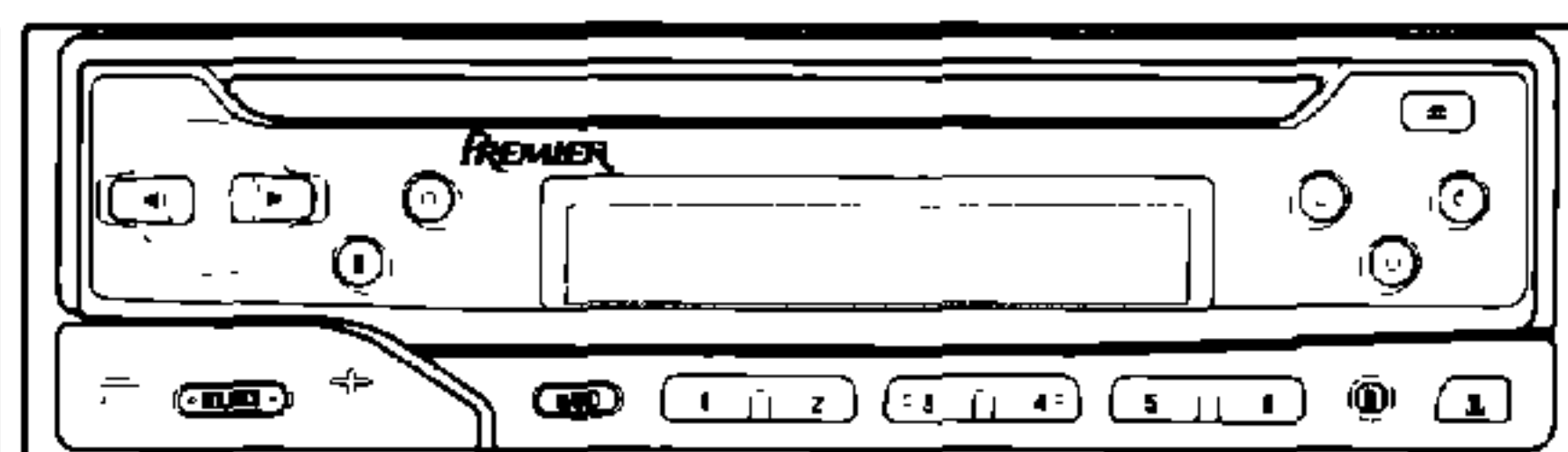


Service Manual

PIONEER
The Art of Entertainment

DEH-48/X1M/UC



ORDER NO.
CRT1966

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-48

X1M/UC

DEH-435 **X1M/UC**

DEH-43 **X1M/UC**

DEH-436 **X1M/ES**

DEH-235 **X1M/UC**

DEH-236 **X1M/ES**

COMPACT
disc
DIGITAL AUDIO

- See the separate manual CX-597(CRT1829) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of CX-597 series.

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● **CD Player Service Precautions**

1. For pickup unit(CXX1230) handling, please refer to "Disassembly"(CX-597 Service Manual CRT1829).
During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the pickup unit(see page 63).

1. SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING

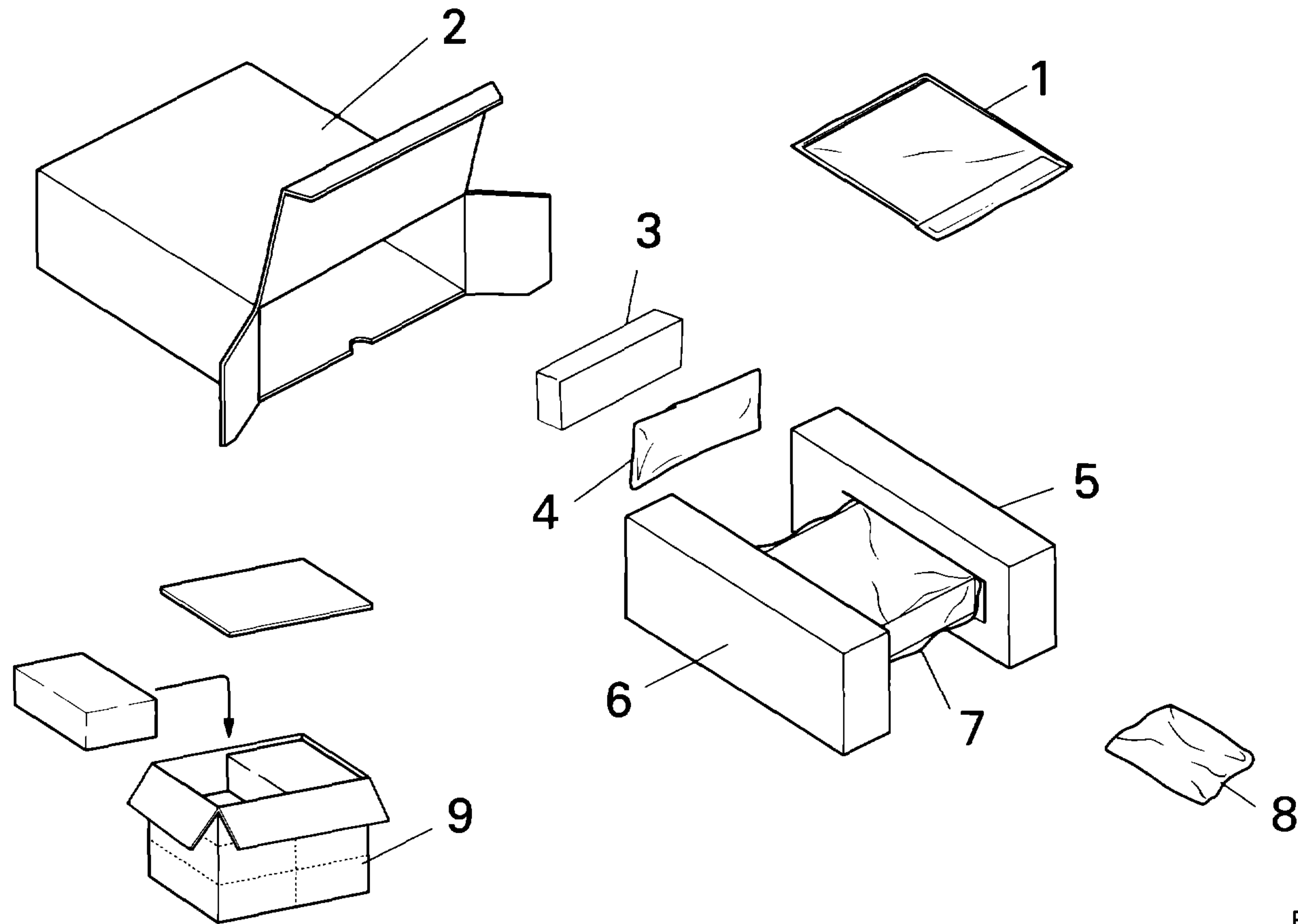


Fig. 1

NOTE:

- Parts marked by “*” are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▼ mark on the product are used for disassembly.

● Parts List

Mark	No.	Symbol & Description	Part No.					
			DEH-48/X1M/UC	DEH-435/X1M/UC	DEH-43/X1M/UC	DEH-436/X1M/ES	DEH-235/X1M/UC	DEH-236/X1M/ES
*	1-1	Owner's Manual	CRD2233	CRD2235	CRD2235	CRD2242	CRD2237	CRD2244
	1-2	Installation Manual	CRD2234	CRD2236	CRD2236	CRD2243	CRD2236	CRD2243
	1-3	Polyethylene Bag	CEG1116	CEG1116	CEG1116	CEG1116	CEG1116	CEG1116
	1-4	Warranty Card	CRY1070	Not used	Not used	Not used	Not used	Not used
	1-5	Card	Not used	ARY1048	ARY1048	Not used	ARY1048	Not used
	2	Carton	CHG3257	CHG3258	CHG3259	CHG3262	CHG3264	CHG3265
	3	Case Assy	CXB1063	CXB1063	CXB1063	CXB1063	Not used	Not used
	4	Cord	CDE4867	CDE4867	CDE4867	CDE4867	CDE4867	CDE4867
	5	Protector	CHP1769	CHP1769	CHP1769	CHP1769	CHP1769	CHP1769
	6	Protector	CHP1768	CHP1768	CHP1768	CHP1768	CHP1768	CHP1768
	7	Polyethylene Bag	CEG1173	CEG1173	CEG1173	CEG-162	CEG1173	CEG-162
	8	Accessory Assy	CEA1918	CEA1918	CEA1918	CEA2002	CEA1918	CEA2002
	9	Contain Box	CHL3257	CHL3258	CHL3259	CHL3262	CHL3264	CHL3265

DEH-48,435,43,436,235,236

● Owner’s Manual

Model	Part No.	Language
DEH-48/X1M/UC	CRD2233	English, French
DEH-43/X1M/UC, DEH-435/X1M/UC	CRD2235	English, French, Spanish
DEH-436/X1M/ES	CRD2242	English, French, Spanish, Arabic
DEH-235/X1M/UC	CRD2237	English, French, Spanish
DEH-236/X1M/ES	CRD2244	English, French, Spanish, Arabic

● Installation Manual

Model	Part No.	Language
DEH-48/X1M/UC	CRD2234	English, French
DEH-43/X1M/UC, DEH-435/X1M/UC	CRD2236	English, French, Spanish
DEH-436/X1M/ES	CRD2243	English, French, Spanish, Arabic
DEH-235/X1M/UC	CRD2236	English, French, Spanish
DEH-236/X1M/ES	CRD2243	English, French, Spanish, Arabic

● Accessory Assy

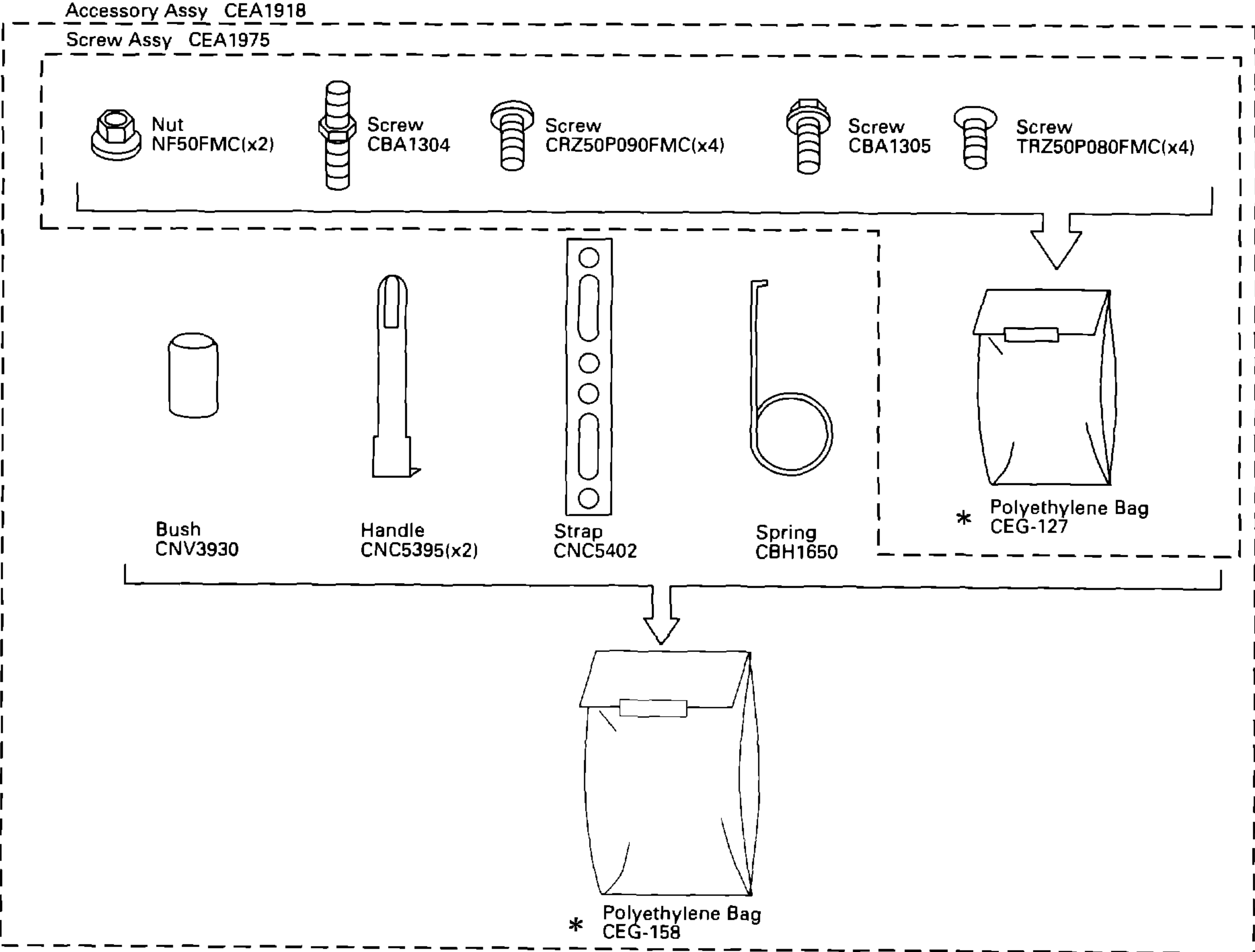


Fig. 2

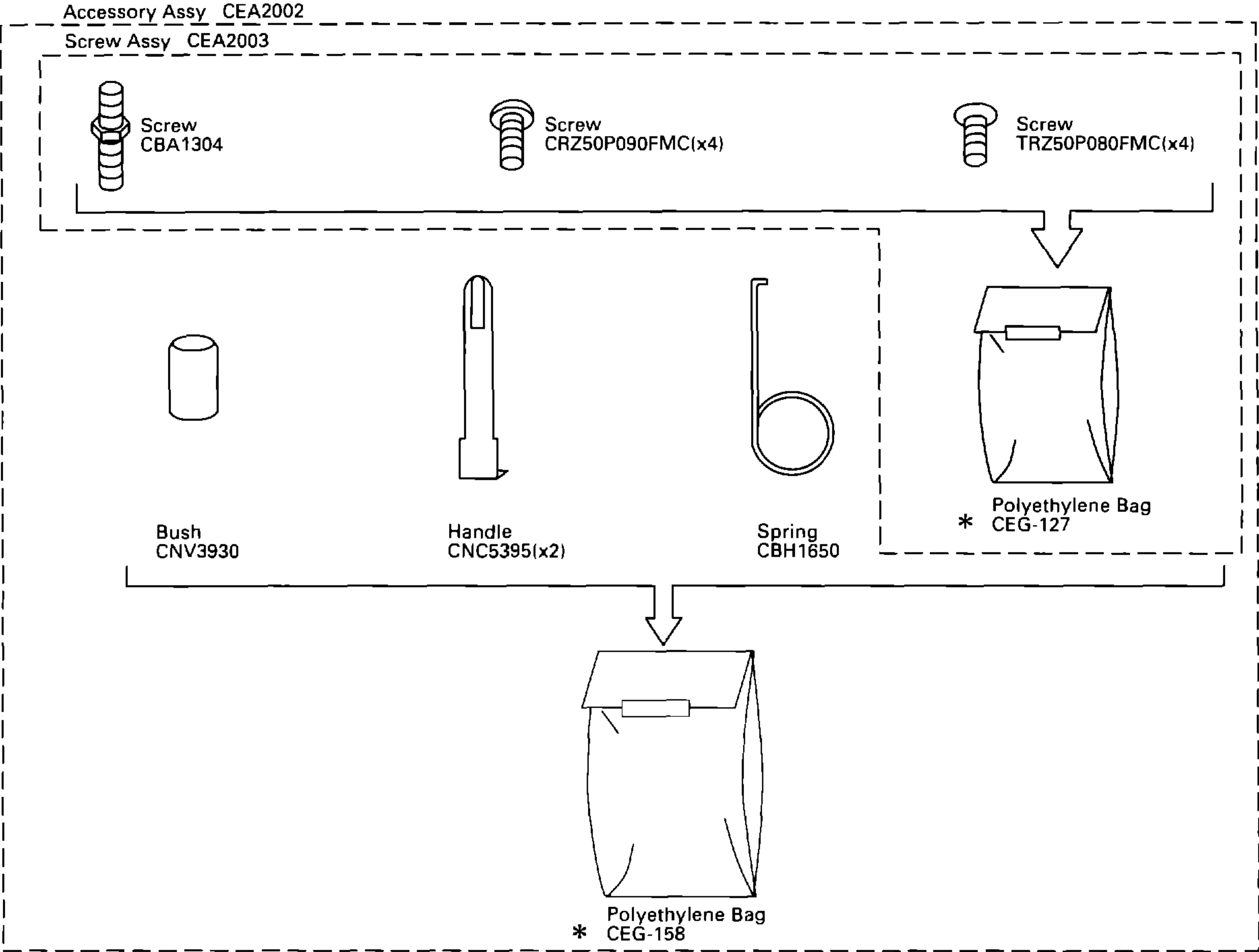


Fig. 3

2.2 CD MECHANISM MODULE

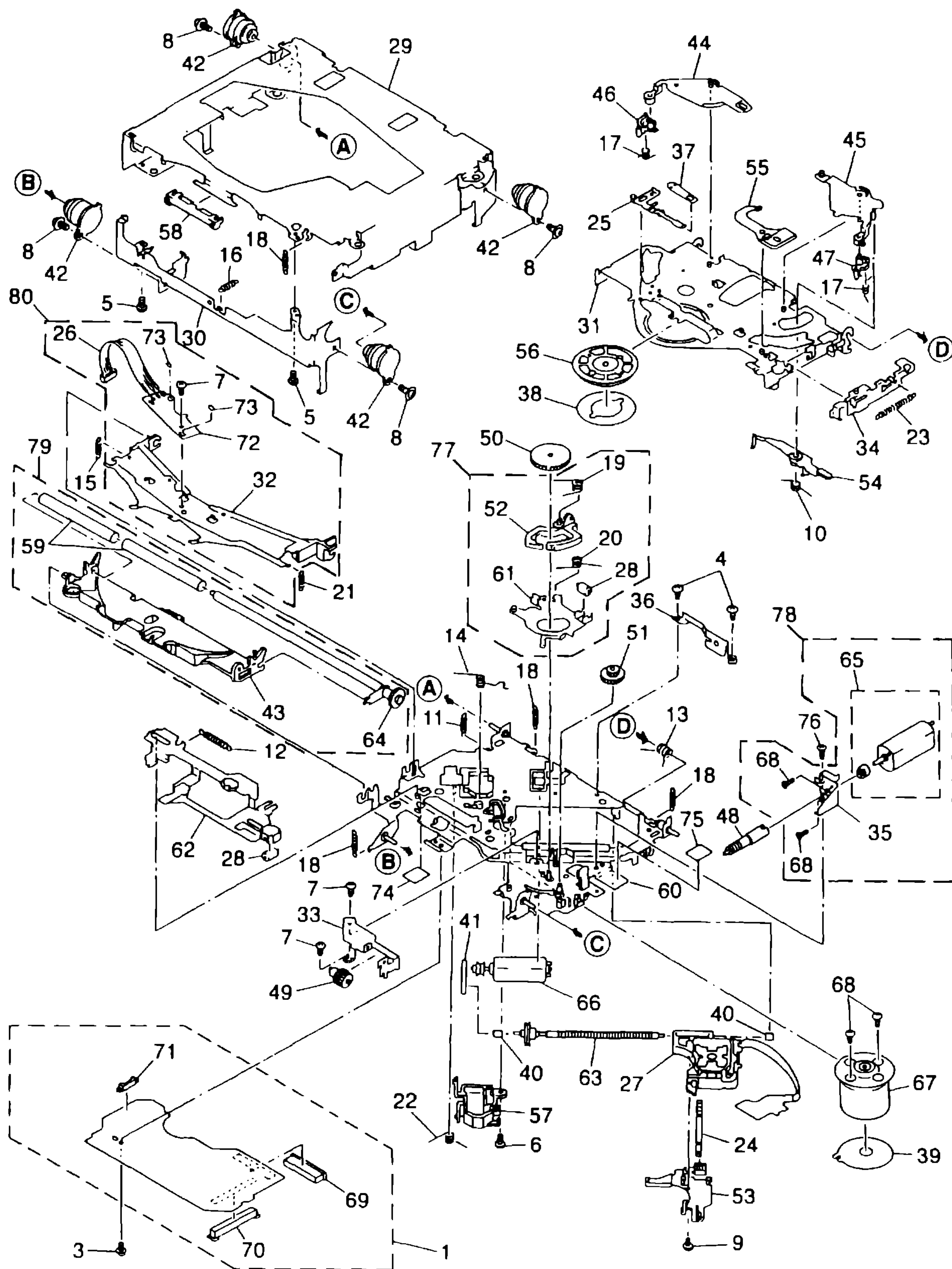


Fig. 4

● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Control Unit	CWX1889	46	Arm	CNV4124
2	.....		47	Arm	CNV4125
3	Screw	IMS26P035FMC	48	Gear	CNV4128
4	Screw	BMZ20P040FMC	49	Gear	CNV4129
5	Screw	BSZ20P040FMC	50	Gear	CNV4130
6	Screw(M2×3)	CBA1077	51	Gear	CNV4131
7	Screw(M2×2)	CBA1250	52	Arm	CNV4136
8	Screw(M2×5)	CBA1296	53	Holder	CNV4663
9	Screw(M2×3.85)	CBA1362	54	Arm	CNV4138
10	Spring	CBH1916	55	Arm	CNV4139
11	Spring	CBH1724	56	Clamper	CNV4712
12	Spring	CBH1939	57	Holder	CNV4664
13	Spring	CBH1729	58	Guide	CNV4484
14	Spring	CBH1730	59	Roller	CNV4509
15	Spring	CBH1731	60	Chassis Unit	CXA8561
16	Spring	CBH1732	61	Arm Unit	CXA8565
17	Spring	CBH1736	62	Lever Unit	CXA9300
18	Spring	CBH1745	63	Screw Unit	CXA9388
19	Spring	CBH1832	64	Gear Unit	CXA9389
20	Spring	CBH1833	65	Load Motor Unit(M3)	CXA9391
21	Spring	CBH1848	66	CRG Motor Unit(M2)	CXA9392
22	Spring	CBH1849	67	Motor Unit(M1)	CXA9407
23	Spring	CBH1863	68	Screw	JFZ20P025FMC
24	Spring	CBL1214	69	Connector(CN101)	CKS1953
25	Spring	CBL1269	70	Connector(CN701)	CKS2774
26	Connector(CN1)	CDE4576	71	Connector(CN801)	CKS2196
27	Pickup Unit(Service)	CXX1230	* 72	Gathering PCB	CNX2445
28	Roller	CLA2627	73	Photo-transistor(Q1, 2)	CPT-230S-X
29	Frame	CNC5796	74	Sheet	CNM4873
30	Frame	CNC5797	75	Cushion	CNM3917
31	Arm	CNC5799	76	Screw	BMZ20P025FMC
32	Arm	CNC5801	77	.....
33	Bracket	CNC5871	78	.....
34	Lever	CNC6054	79	.....
35	Bracket	CNC6056	80	.....
* 36	Bracket	CNC6376			
37	Spacer	CNM3315			
38	Sheet	CNM4849			
39	PCB	CNP4230			
40	Bearing	CNR1415			
41	Belt	CNT1071			
42	Damper	CNV3974			
43	Arm	CNV4120			
44	Arm	CNV4122			
45	Arm	CNV4123			

2.3 EXTERIOR(DEH-235/X1M/UC, DEH-236/X1M/ES)

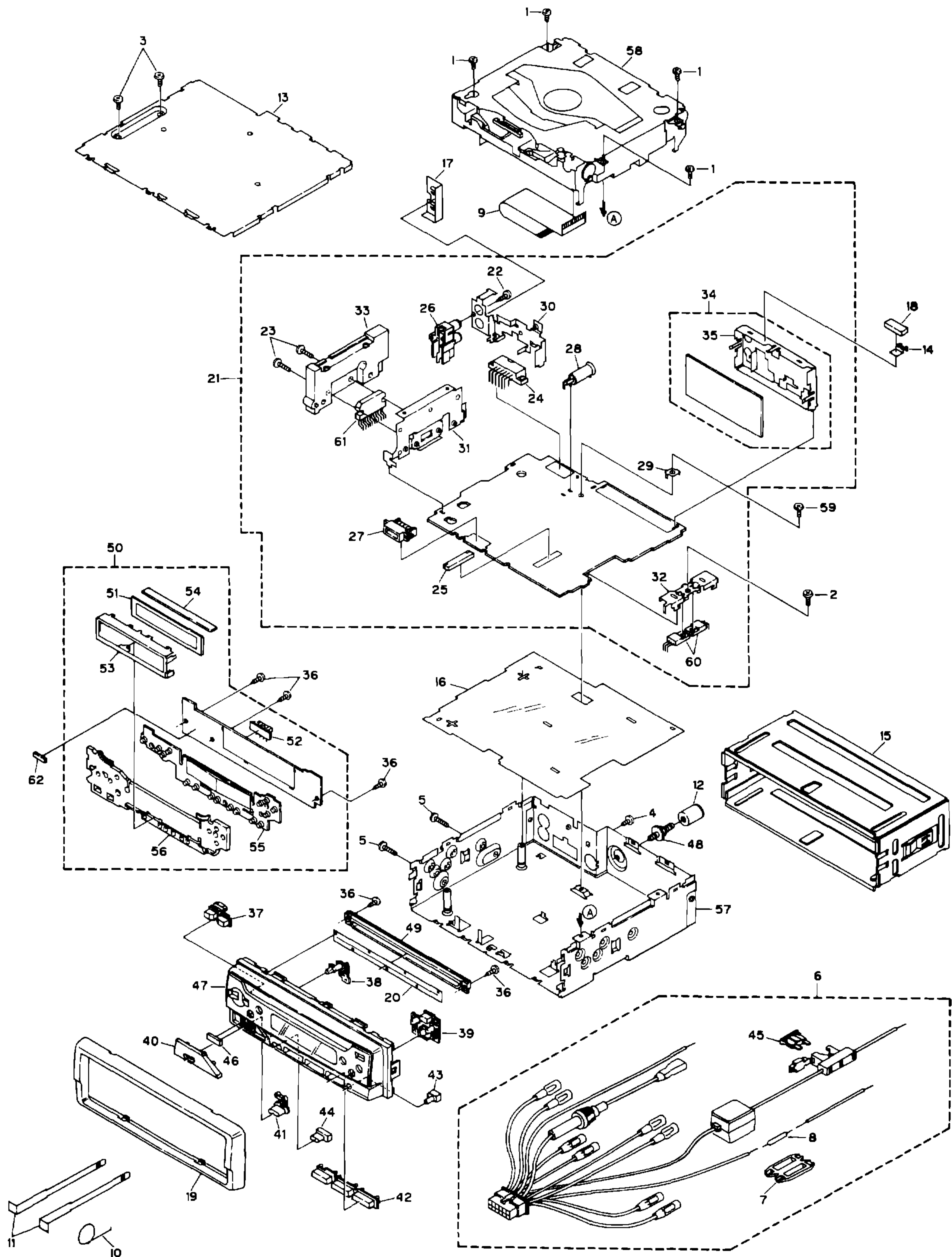


Fig. 5

● Parts List

Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC
2	Screw	ASZ26P080FMC
3	Screw	BSZ30P050FMC
4	Screw	BSZ30P060FMC
5	Screw	BSZ30P160FMC
6	Cord	CDE4867
7	Cap	CNS1472
8	Resistor	RS1/2PMF102J
9	Cable	CDE4869
10	Spring	CBH1650
11	Handle	CNC5395
12	Bush	CNV3930
13	Case	CNB1989
14	Holder	CNC6469
15	Holder	CNC6798
16	Insulator	CNM5067
17	Insulator	CNM4811
18	Cushion	CNM5210
19	Panel	CNS4200
20	Cover	CNM4704
21	Tuner Amp Unit (DEH-235/X1M/UC)	CWM4968
	Tuner Amp Unit (DEH-236/X1M/ES)	CWM4969
22	Screw	BPZ26P120FMC
23	Screw	BSZ26P120FMC
24	Plug(CN951)	CKM1225
25	Connector(CN681)	CKS2228
26	Connector(CN421)	CKS3357
27	Connector(CN651)	CKS3581
28	Antenna Jack(CN501)	CKX1056
29	Holder	CNC5399
30	Bracket	CNC6130
31	Holder	CNC6131
32	Holder	CNC6132

Mark No.	Description	Part No.
33	Heat Sink	CNR1407
34	FM/AM Tuner Unit (DEH-235/X1M/UC)	CWE1417
	FM/AM Tuner Unit (DEH-236/X1M/ES)	CWE1485
35	Holder	CNC6555
36	Screw	BPZ20P100FZK
37	Button(S.SEEK)	CAC4900
38	Button(LOC.CLOCK)	CAC4901
39	Button(EJECT)	CAC5248
40	Button(- +)	CAC4903
41	Button(SOURCE)	CAC4904
42	Button(1-6)	CAC4905
43	Button(BSM)	CAC4906
44	Button(BAND)	CAC4907
45	Fuse(10A)	CEK1136
46	Cushion	CNM5156
47	Grille Unit (DEH-235/X1M/UC)	CXB1469
	Grille Unit (DEH-236/X1M/ES)	CXB1470
48	Screw	CBA1304
49	Holder	CNV4778
50	Keyboard Unit	CWM5203
51	LCD(LCD901)	CAW1330
52	Connector(CN901)	CKS3580
53	Holder	CNC6873
54	Connector	CNV4449
55	Rubber	CNV4766
56	Lighting Conductor	CNV4777
57	Chassis Unit	CXA9729
58	CD Mechanism Module(S7)	CXK4201
59	Screw	BSZ30P055FUC
60	Transistor(Q981,991)	2SD2396
61	IC(IC551)	TDA7384A
62	Cushion	CNM5271

2.4 EXTERIOR (EXCEPT FOR DEH-235/X1M/UC, DEH-236/X1M/ES)

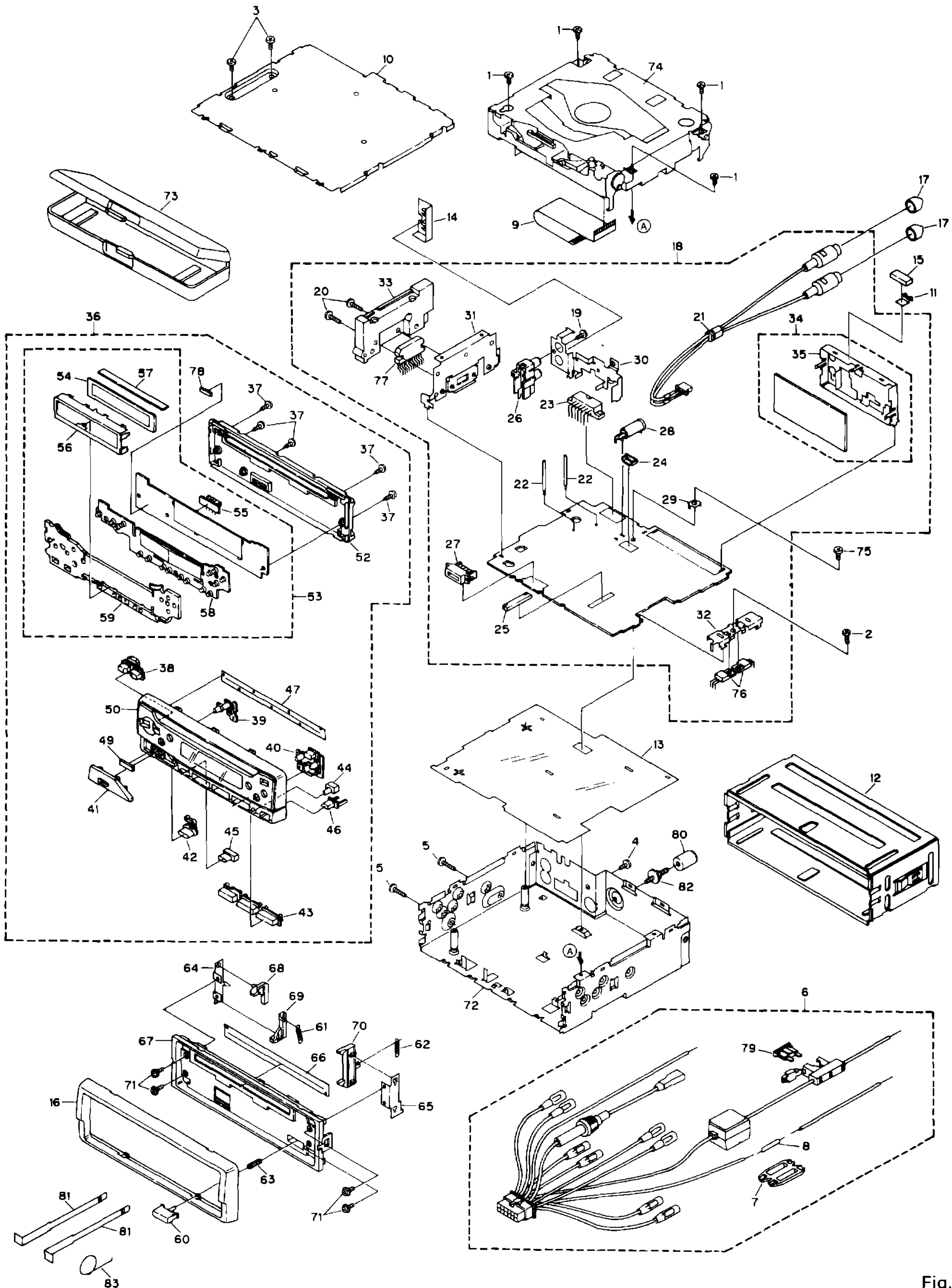


Fig. 6

(1)PARTS LIST

Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC
2	Screw	ASZ26P080FMC
3	Screw	BSZ30P050FMC
4	Screw	BSZ30P060FMC
5	Screw	BSZ30P160FMC
6	Cord	CDE4867
7	Cap	CNS1472
8	Resistor	RS1/2PMF102J
9	Cable	CDE4869
10	Case	CNB1989
11	Holder	CNC6469
12	Holder	CNC6798
13	Insulator	CNM5067
14	Insulator	CNM4811
15	Cushion	CNM5210
16	Panel	CNS4200
17	Cap	See Contrast table(2)
18	Tuner Amp Unit	See Contrast table(2)
19	Screw	BPZ26P120FMC
20	Screw	BSZ26P120FMC
21	Cord	See Contrast table(2)
22	Clamper	See Contrast table(2)
23	Plug(CN951)	CKM1225
24	Plug(CN422)	CKS1238
25	Connector(CN681)	CKS2228
26	Connector(CN421)	CKS3357
27	Connector(CN651)	CKS3581
28	Antenna Jack(CN501)	CKX1056
29	Holder	CNC5399
30	Bracket	CNC6130
31	Holder	CNC6131
32	Holder	CNC6132
33	Heat Sink	CNR1407
34	FM/AM Tuner Unit	See Contrast table(2)
35	Holder	CNC6555
36	Detach Grille Assy	See Contrast table(2)
37	Screw	BPZ20P100FZK
38	Button(S.SEEK)	CAC4900
39	Button(LOC.CLOCK)	CAC4901
40	Button(EJECT)	CAC5248
41	Button(- +)	CAC4903
42	Button(SOURCE)	CAC4904
43	Button(1-6)	CAC4905
44	Button(BSM)	CAC4906
45	Button(BAND)	CAC4907

Mark No.	Description	Part No.
46	Button(DETACH)	CAC4908
47	Cover	CNM4704
48	.....
49	Cushion	CNM5156
50	Grille Unit	See Contrast table(2)
51	.....
52	Cover	CNS4203
53	Keyboard Unit	CWM4973
54	LCD(LCD901)	CAW1330
55	Connector(CN901)	CKS3580
56	Holder	CNC6873
57	Connector	CNV4449
58	Rubber	CNV4766
59	Lighting Conductor	CNV4777
60	Button	CAC4836
61	Spring	CBH1834
62	Spring	CBH1835
63	Spring	CBH1933
64	Bracket	CNC6135
65	Bracket	CNC6791
66	Cover	CNM4875
67	Panel	CNS4209
68	Arm	CNV4692
69	Arm	CNV4693
70	Arm	CNV4728
71	Screw	IMS20P030FZK
72	Chassis Unit	See Contrast table(2)
73	Case Assy	CXB1063
74	CD Mechanism Module(S7)	CXK4201
75	Screw	BSZ30P055FUC
76	Transistor(Q981,991)	2SD2396
77	IC(IC551)	TDA7384A
78	Cushion	CNM5271
79	Fuse(10A)	CEK1136
80	Bush	CNV3930
81	Handle	CNC5395
82	Screw	CBA1304
83	Spring	CBH1650

DEH-48,435,43,436,235,236

(2) CONTRAST TABLE

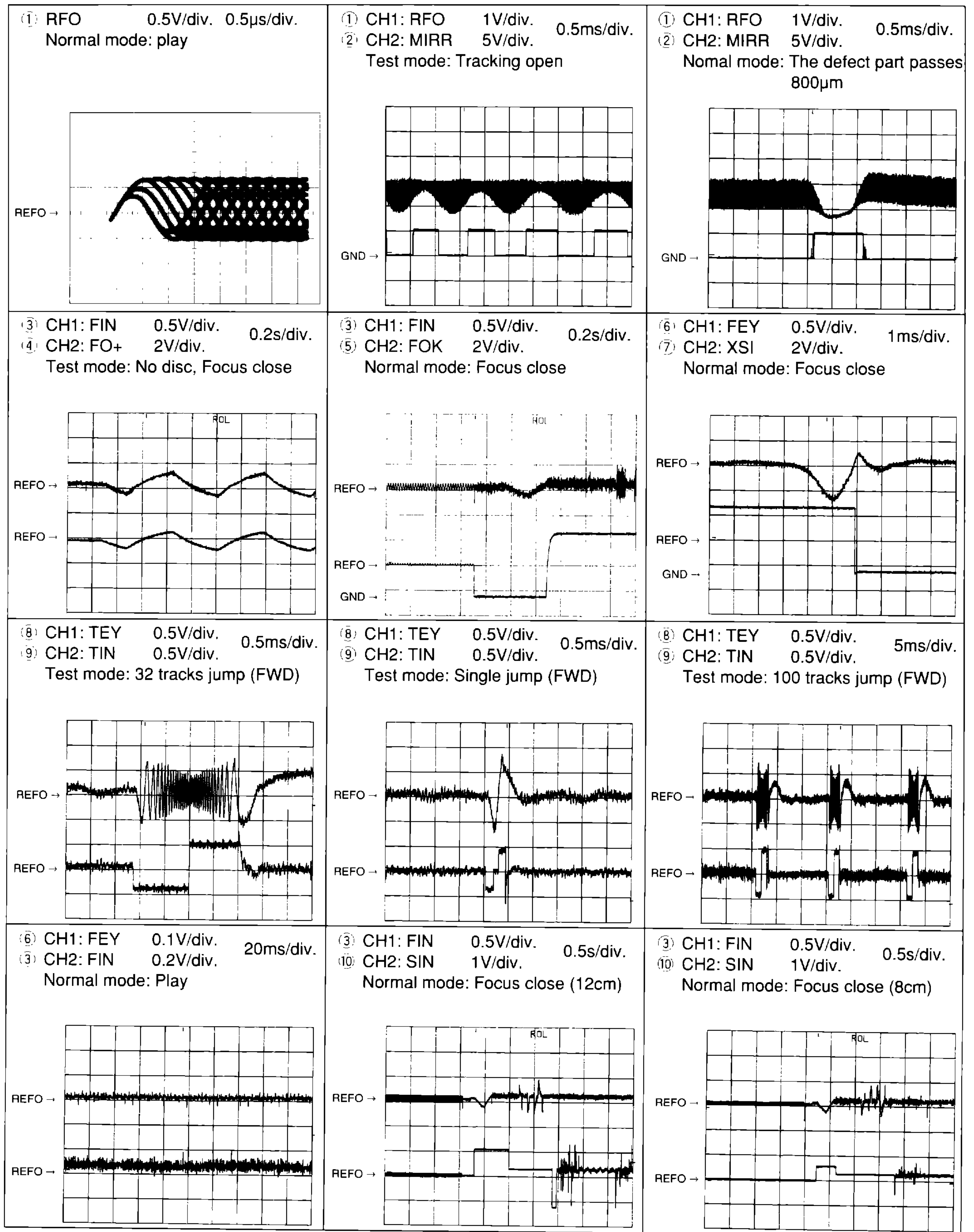
DEH-48/X1M/UC, DEH-435/X1M/UC, DEH-43/X1M/UC and DEH-436/X1M/ES have the same construction except for the following:

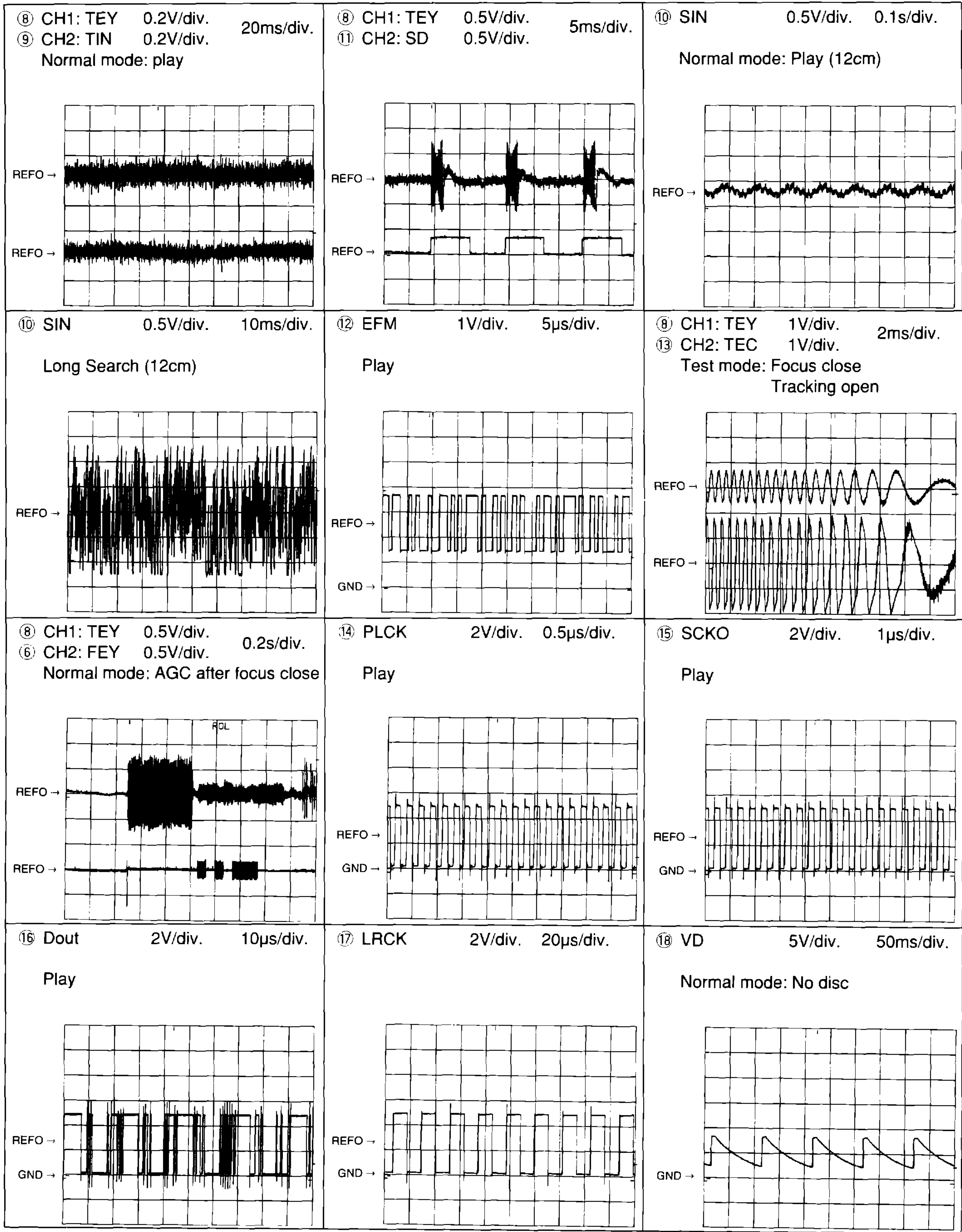
Mark No.	Symbol & Description	Part No.			
		DEH-48/X1M/UC	DEH-435/X1M/UC	DEH-43/X1M/UC	DEH-436/X1M/ES
17	Cap	CNV2680	Not used	Not used	Not used
18	Tuner Amp Unit	CWM4964	CWM4965	CWM4966	CWM4967
21	Cord	CDE4770	Not used	Not used	Not used
22	CImper	CEF1005	Not used	Not used	Not used
34	FM/AM Tuner Unit	CWE1417	CWE1417	CWE1417	CWE1485
36	Detach Grille Assy	CXA9574	CXA9575	CXA9576	CXA9577
50	Grille Unit	CXB1465	CXB1466	CXB1467	CXB1468
72	Chassis Unit	CXA9687	CXA9729	CXA9729	CXA9729

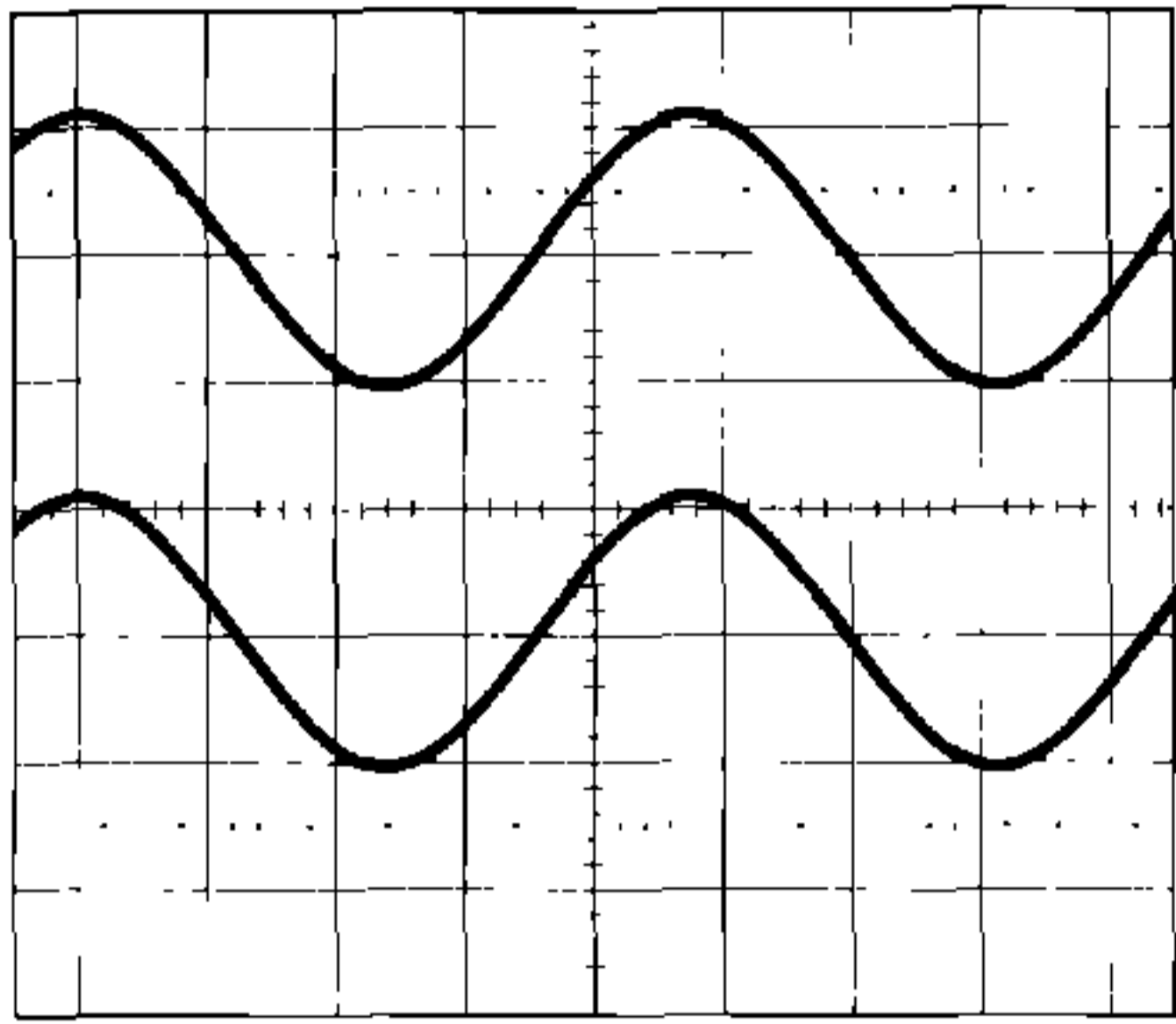
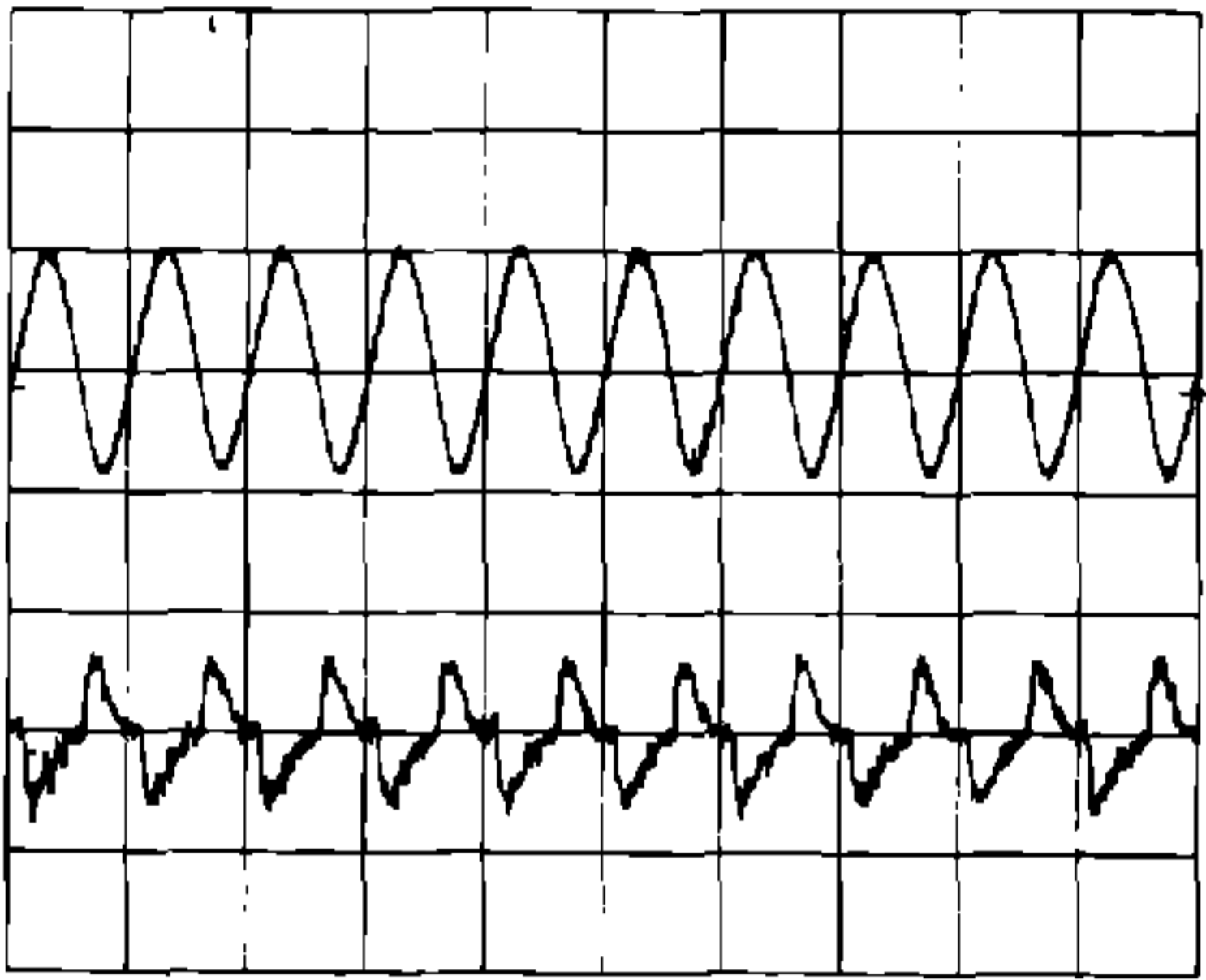
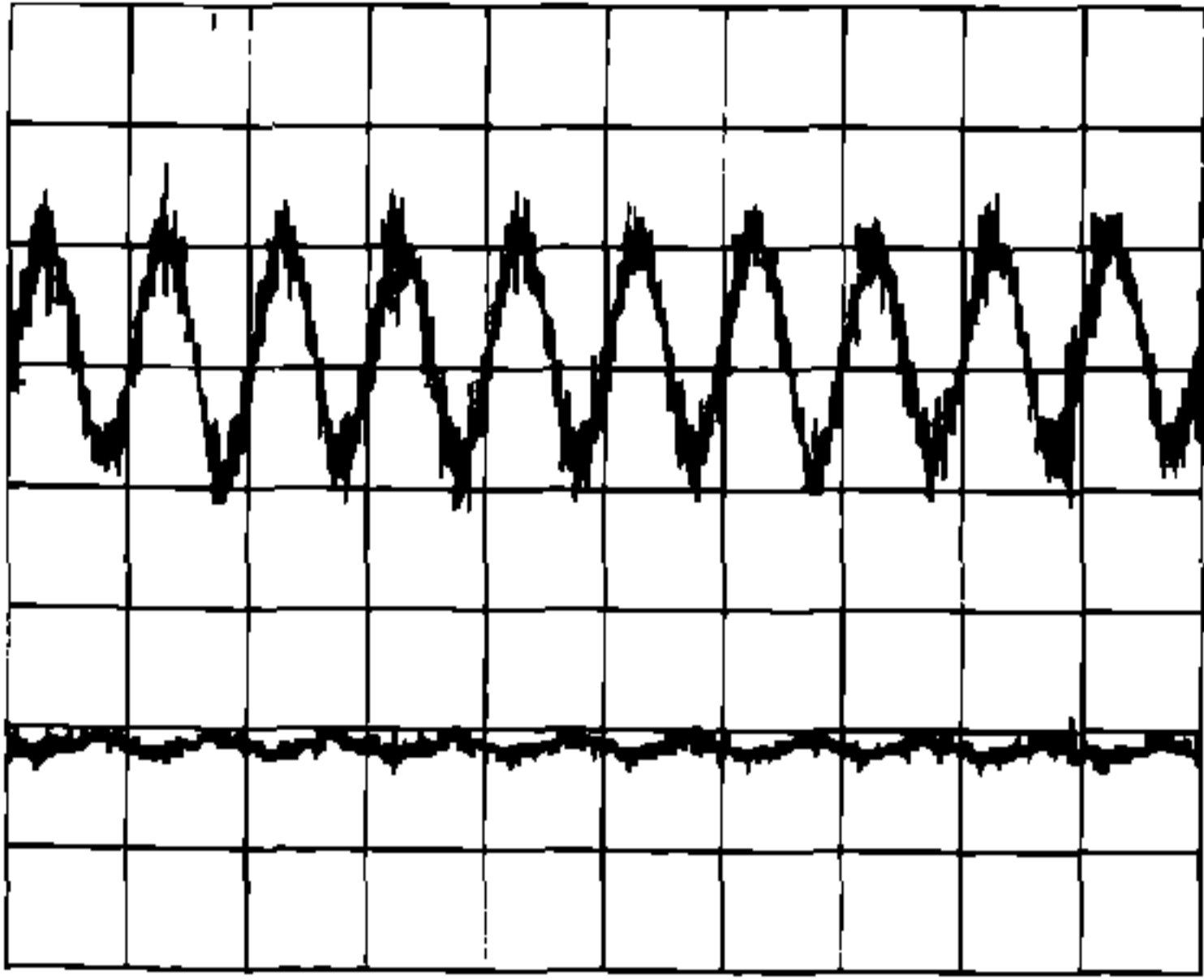
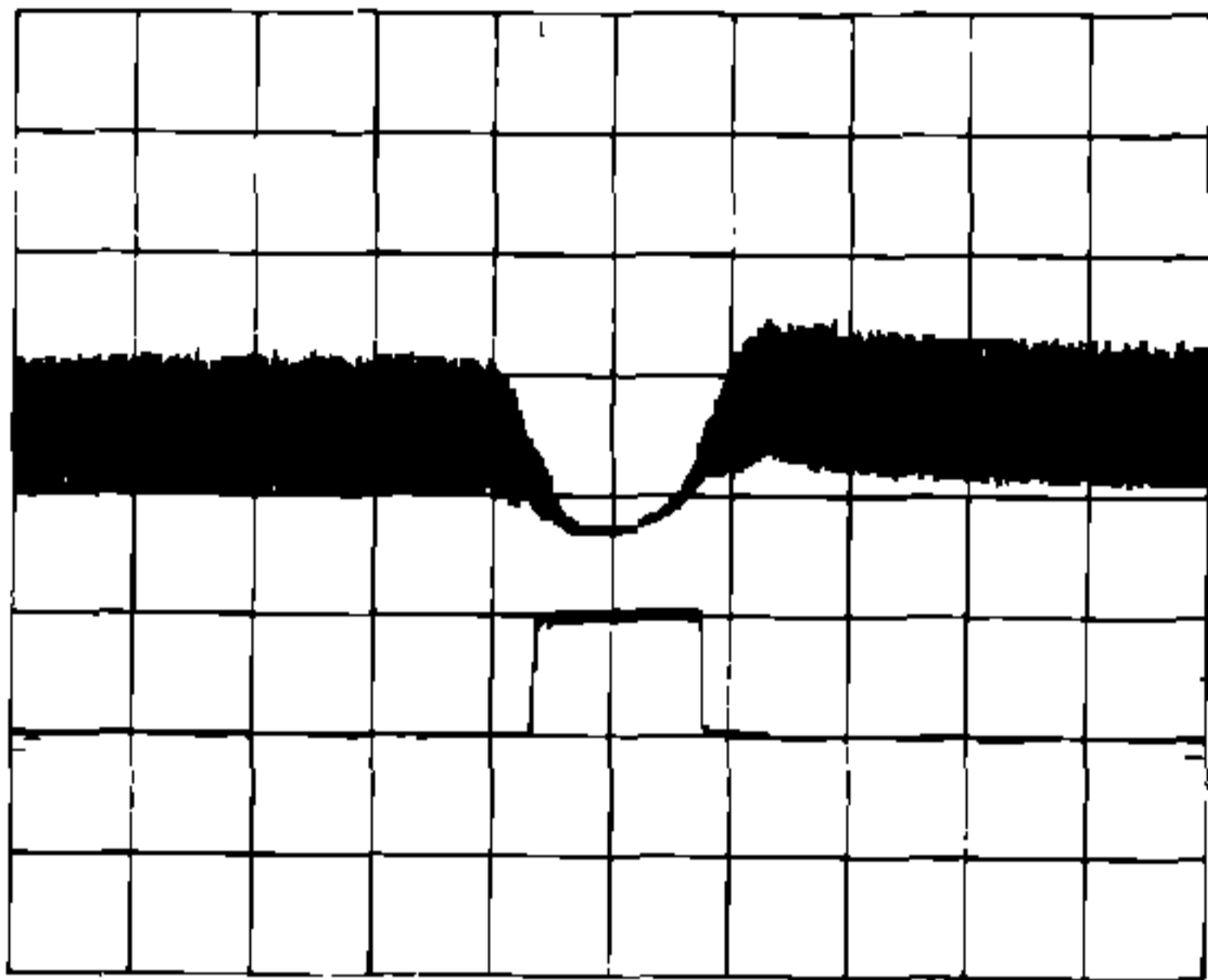
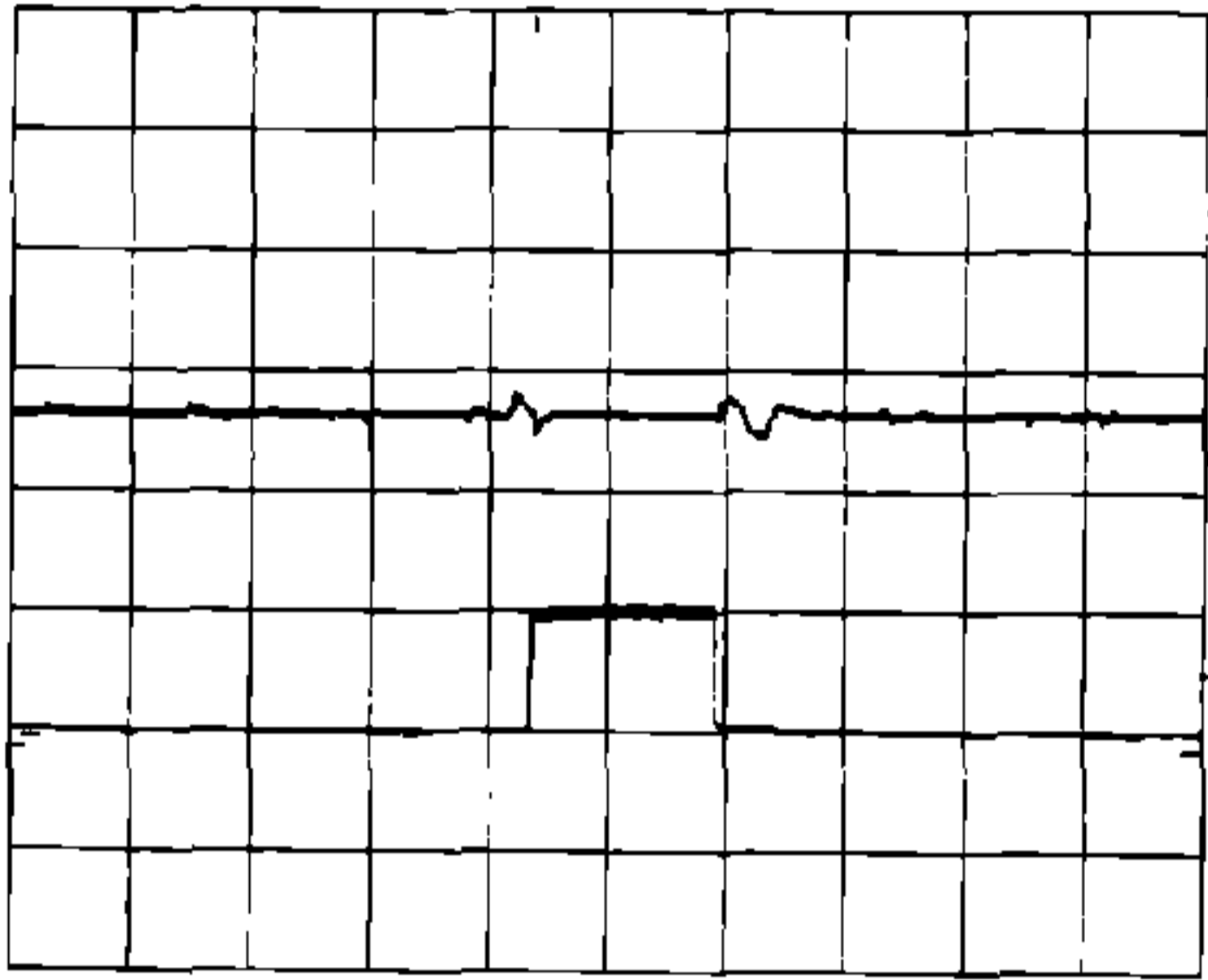
3. SCHEMATIC DIAGRAM

Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

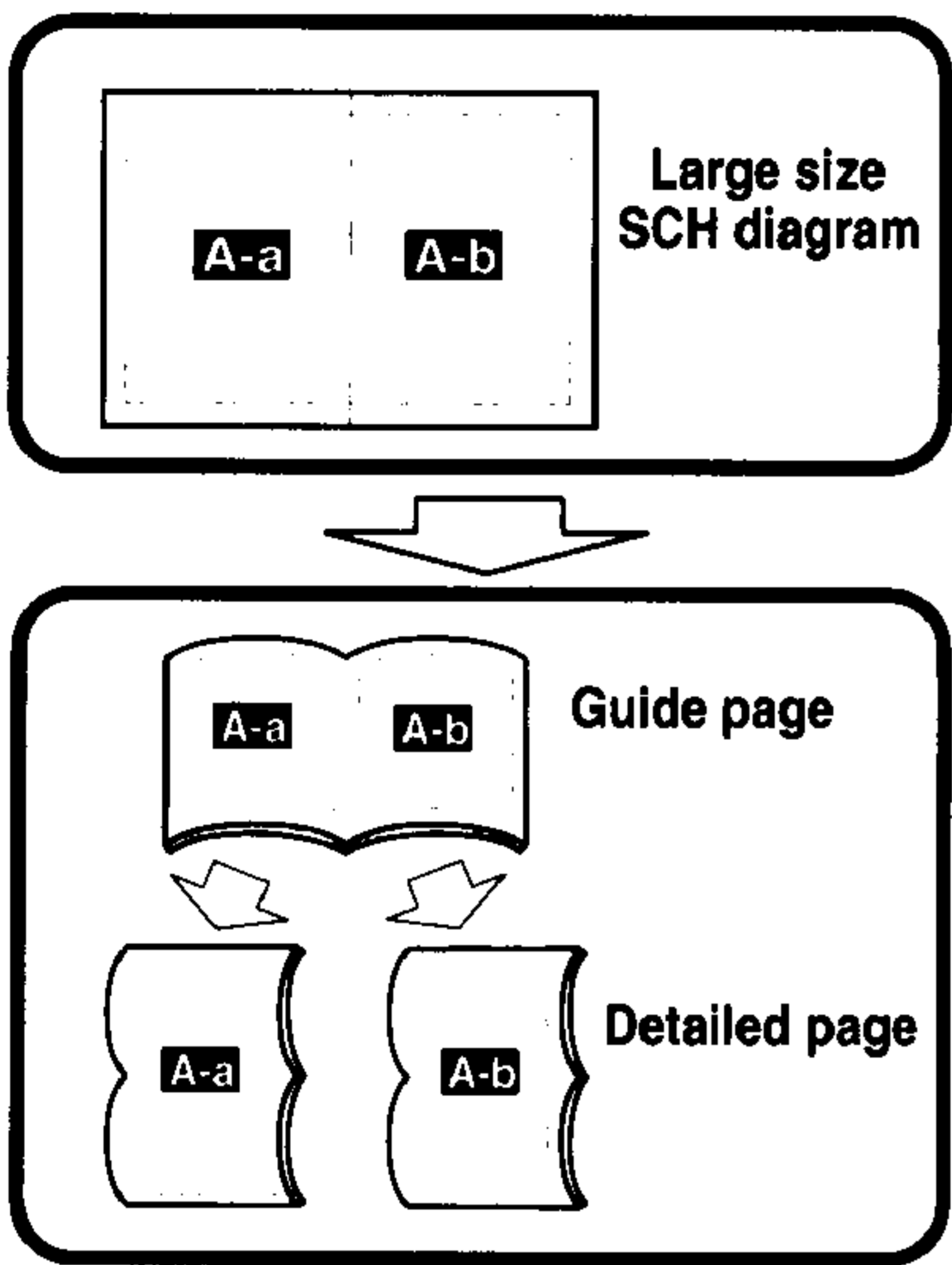




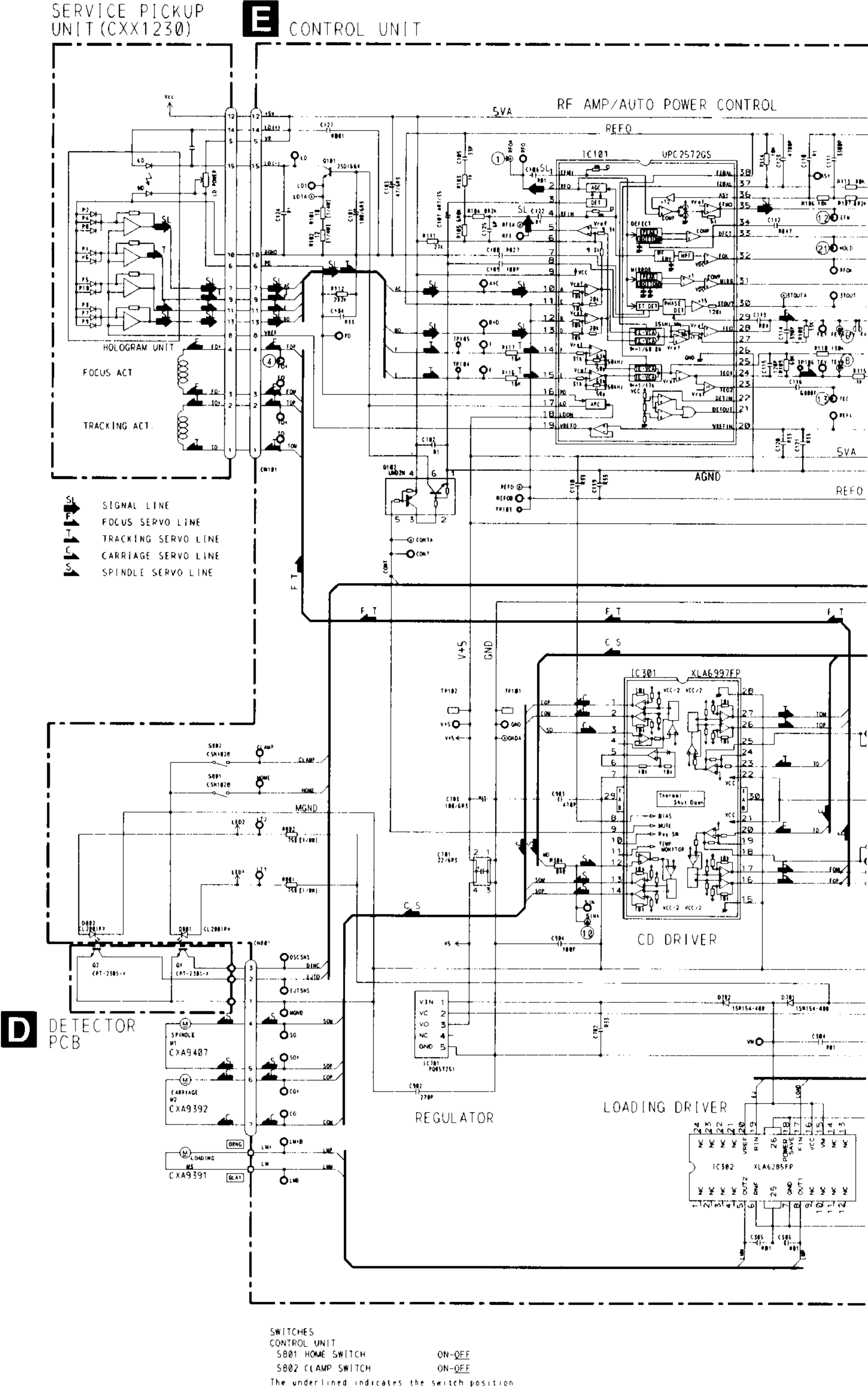
<div>⑮ CH1: R OUT 1V/div. 0.2ms/div.</div> <div>⑳ CH2: L OUT 1V/div.</div> <div>Normal mode: Play (1kHz 0dB)</div> <div></div>	<div>⑥ CH1: FEY 0.2V/div. 1ms/div.</div> <div>③ CH2: FIN 0.5V/div.</div> <div>Normal mode: During AGC</div> <div></div>	<div>⑧ CH1: TEY 0.2V/div. 1ms/div.</div> <div>⑨ CH2: TIN 0.5V/div.</div> <div>Normal mode: During AGC</div> <div></div>
<div>① CH1: RFO 1V/div. 0.5ms/div.</div> <div>㉑ CH2: HOLD 5V/div.</div> <div>Normal mode: The defect part passes 800μm</div> <div></div>	<div>③ CH1: FIN 1V/div. 0.5ms/div.</div> <div>㉑ CH2: HOLD 5V/div.</div> <div>Normal mode: The defect part passes 800μm</div> <div></div>	

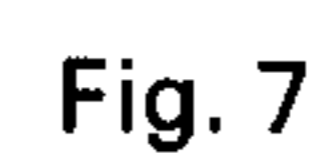
3.1 CD MECHANISM MODULE(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to “EXPLODED VIEWS AND PARTS LIST” or “ELECTRICAL PARTS LIST”.



E-a

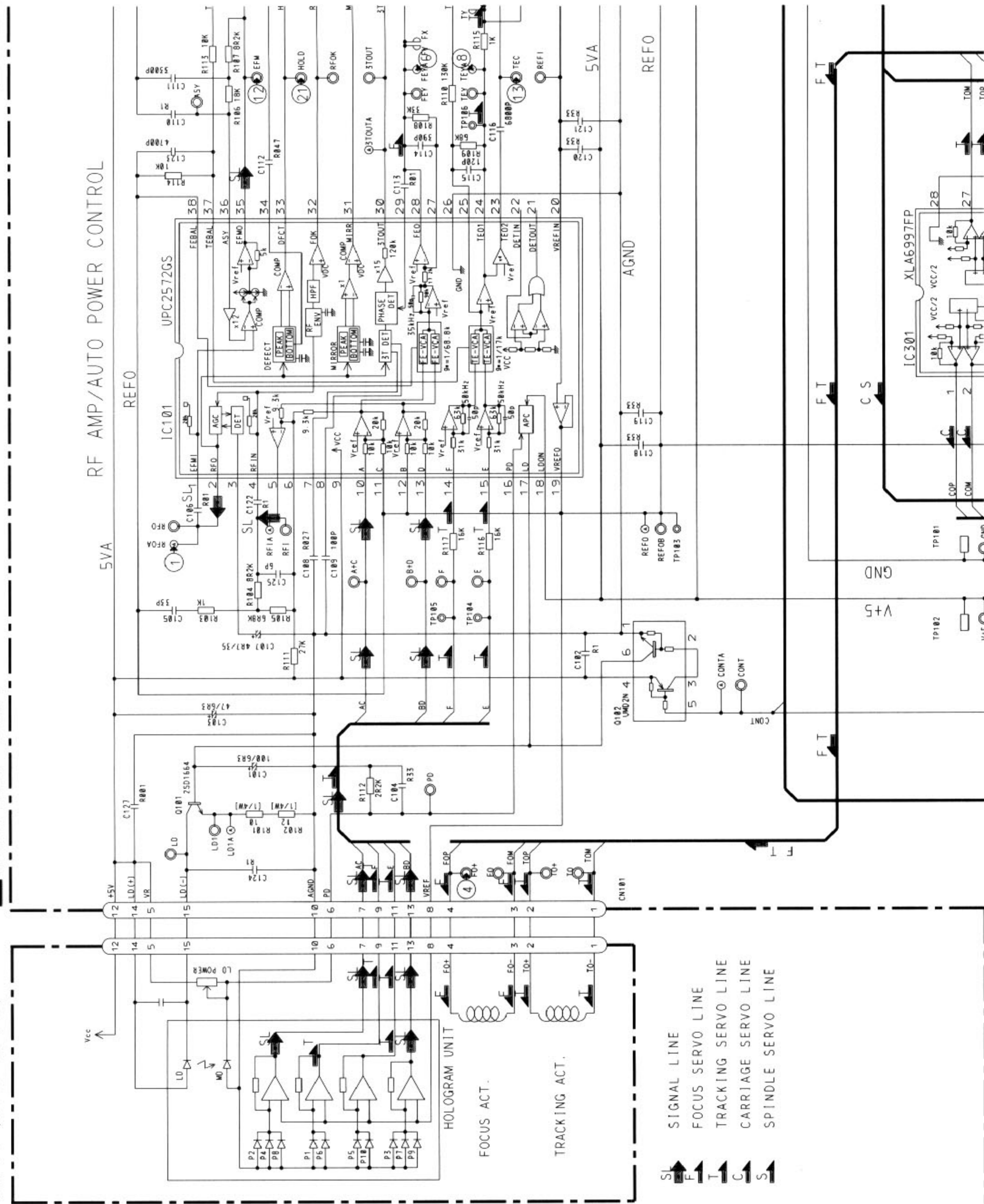


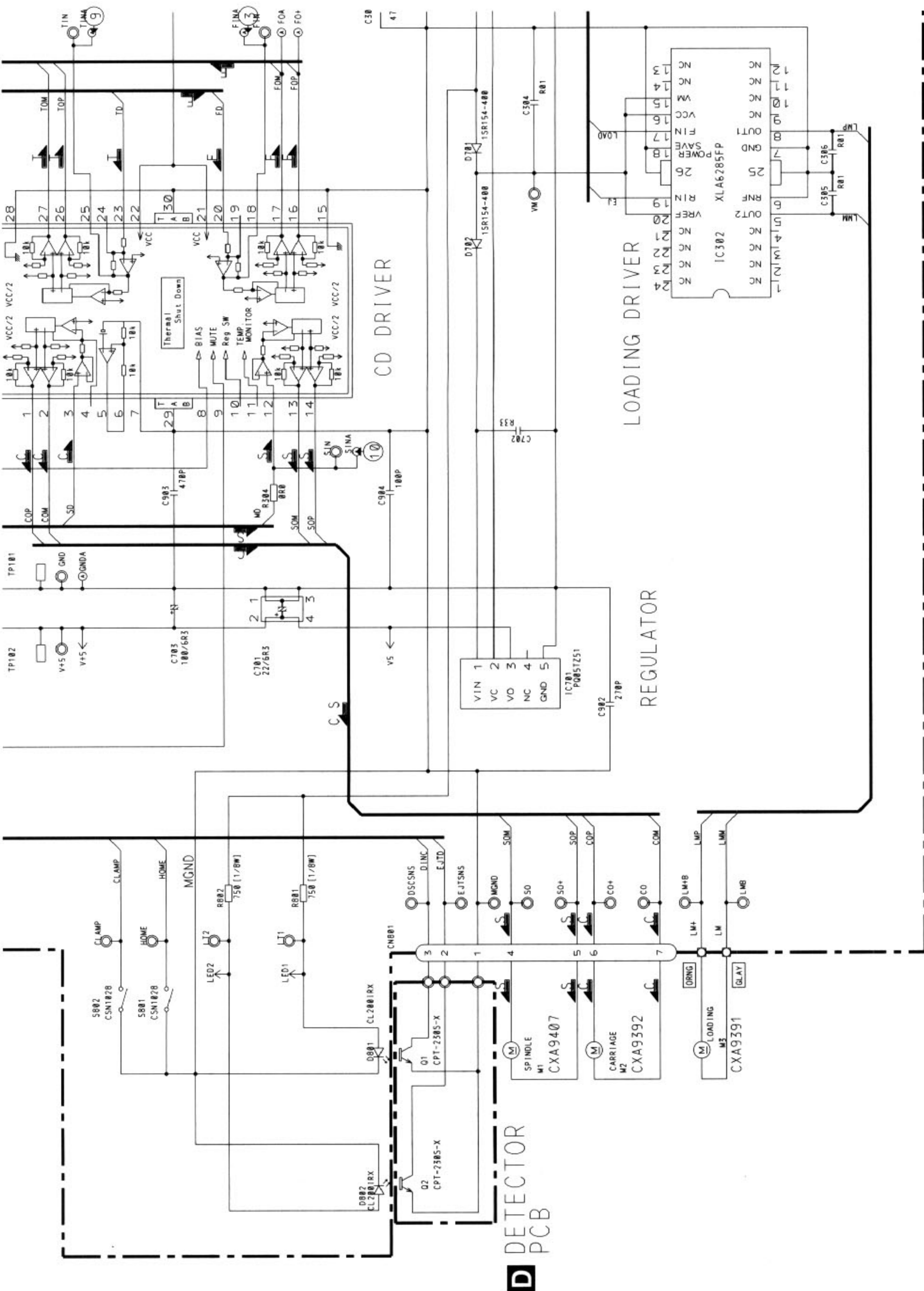


SERVICE PICKUP
UNIT (CXX1230)

E CONTROL UNIT

E-a E-b

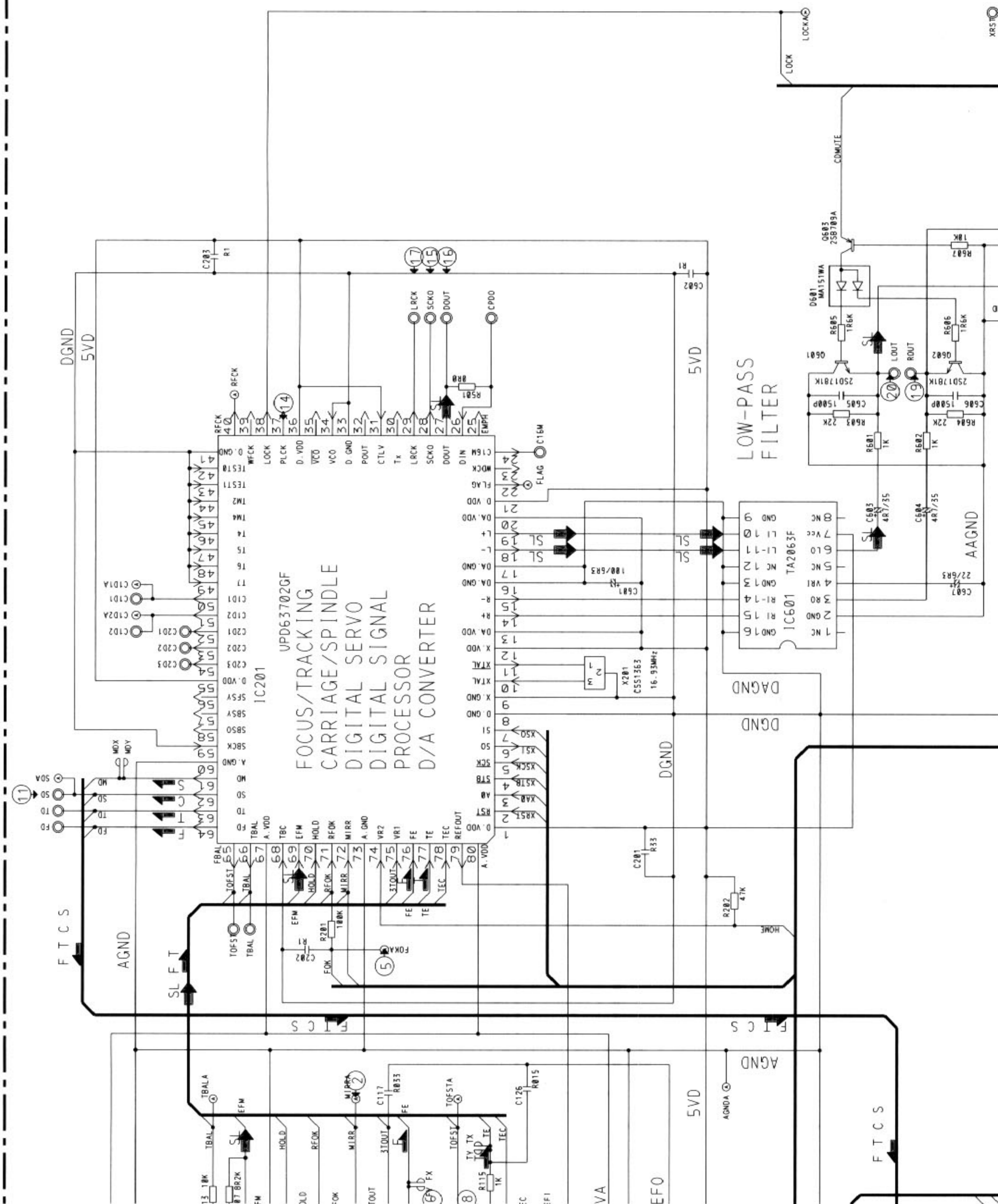


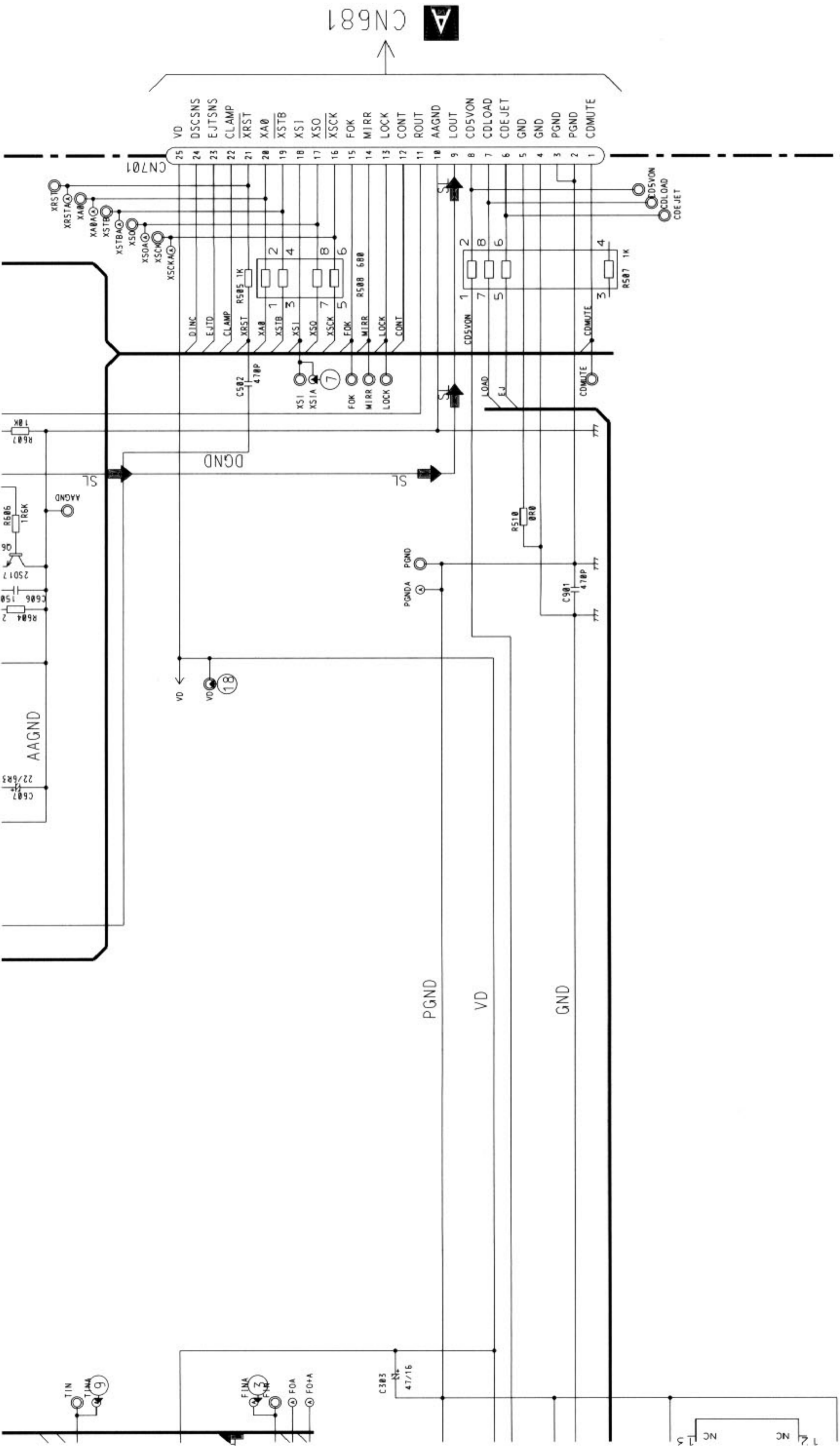


SWITCHES:
CONTROL UNIT
S801:HOME SWITCH ON-OFF
S802:CLAMP SWITCH ON-OFF
The underlined indicates the switch position.

E-a E-b

Fig. 8



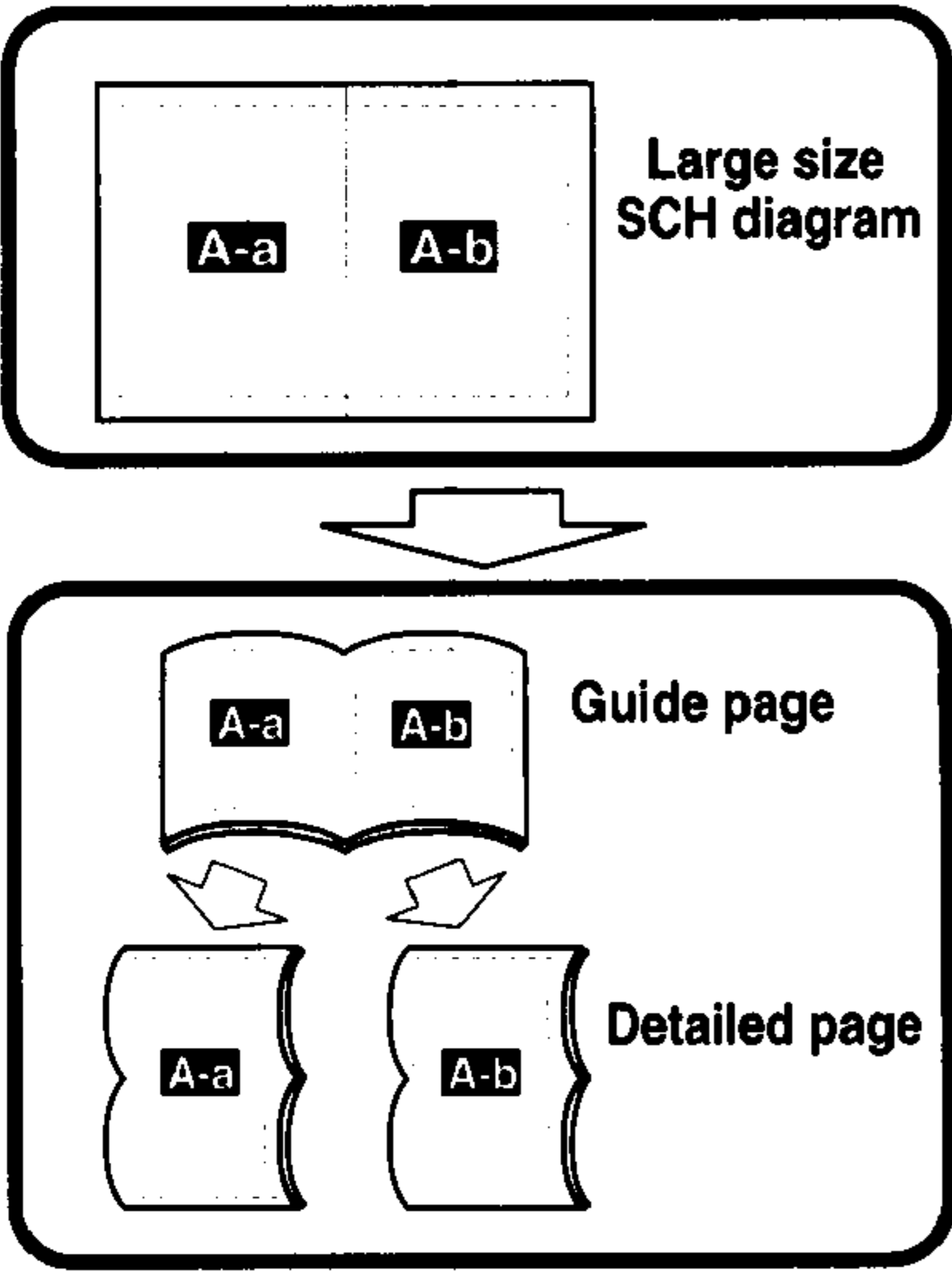


E-a E-b

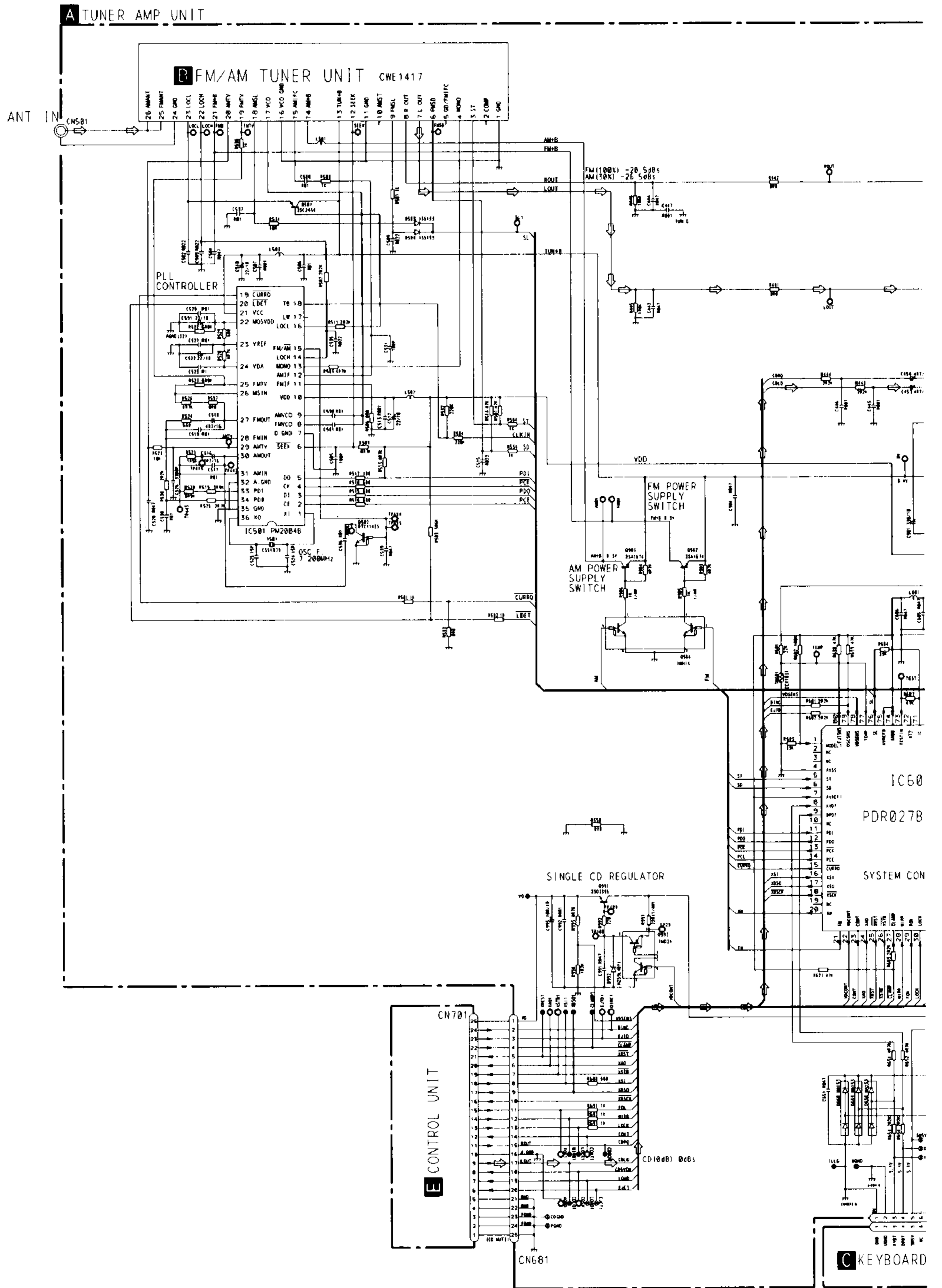
Fig. 9

E-b

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)
(DEH-48/X1M/UC)



A-a



A-b

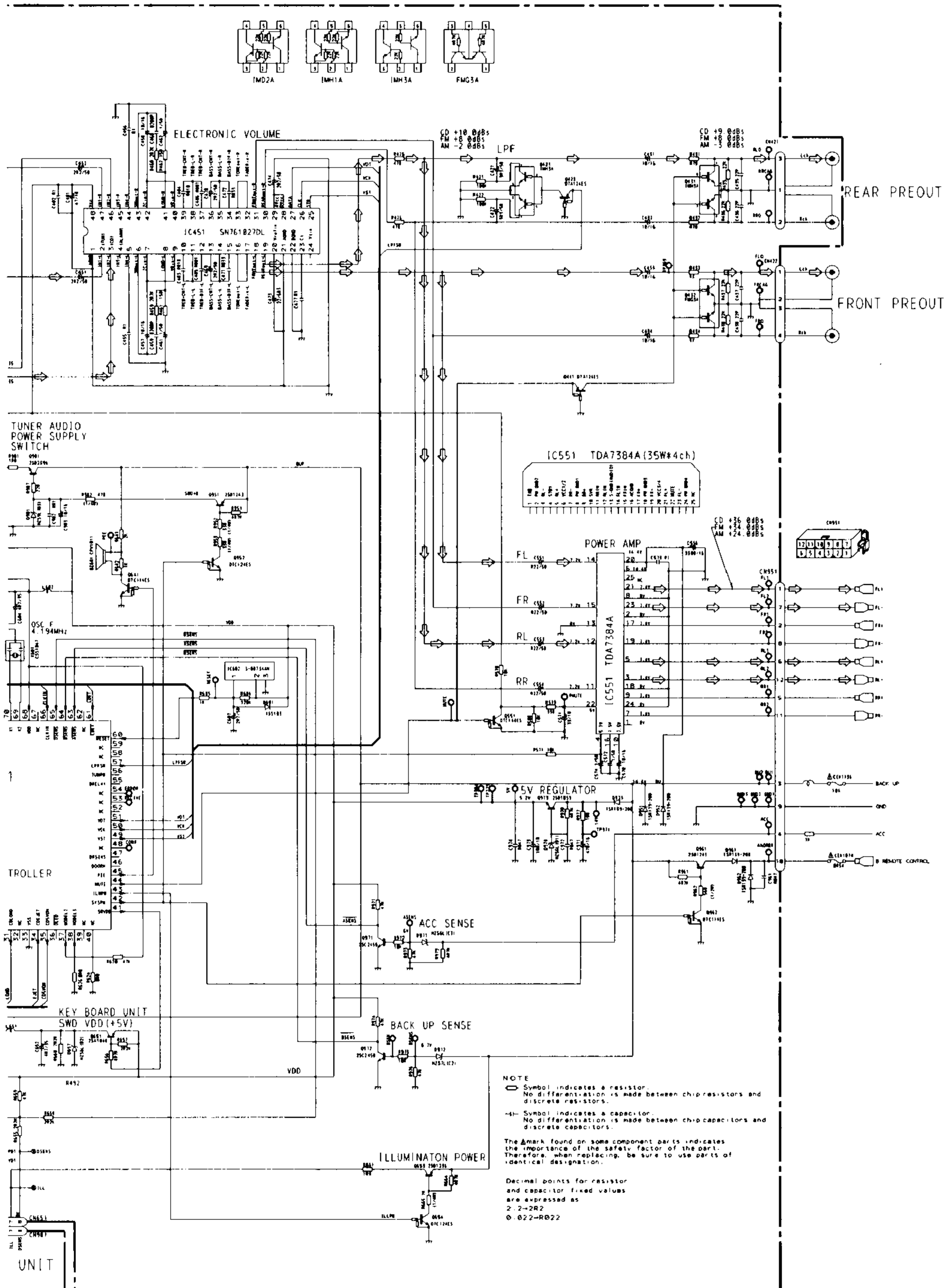
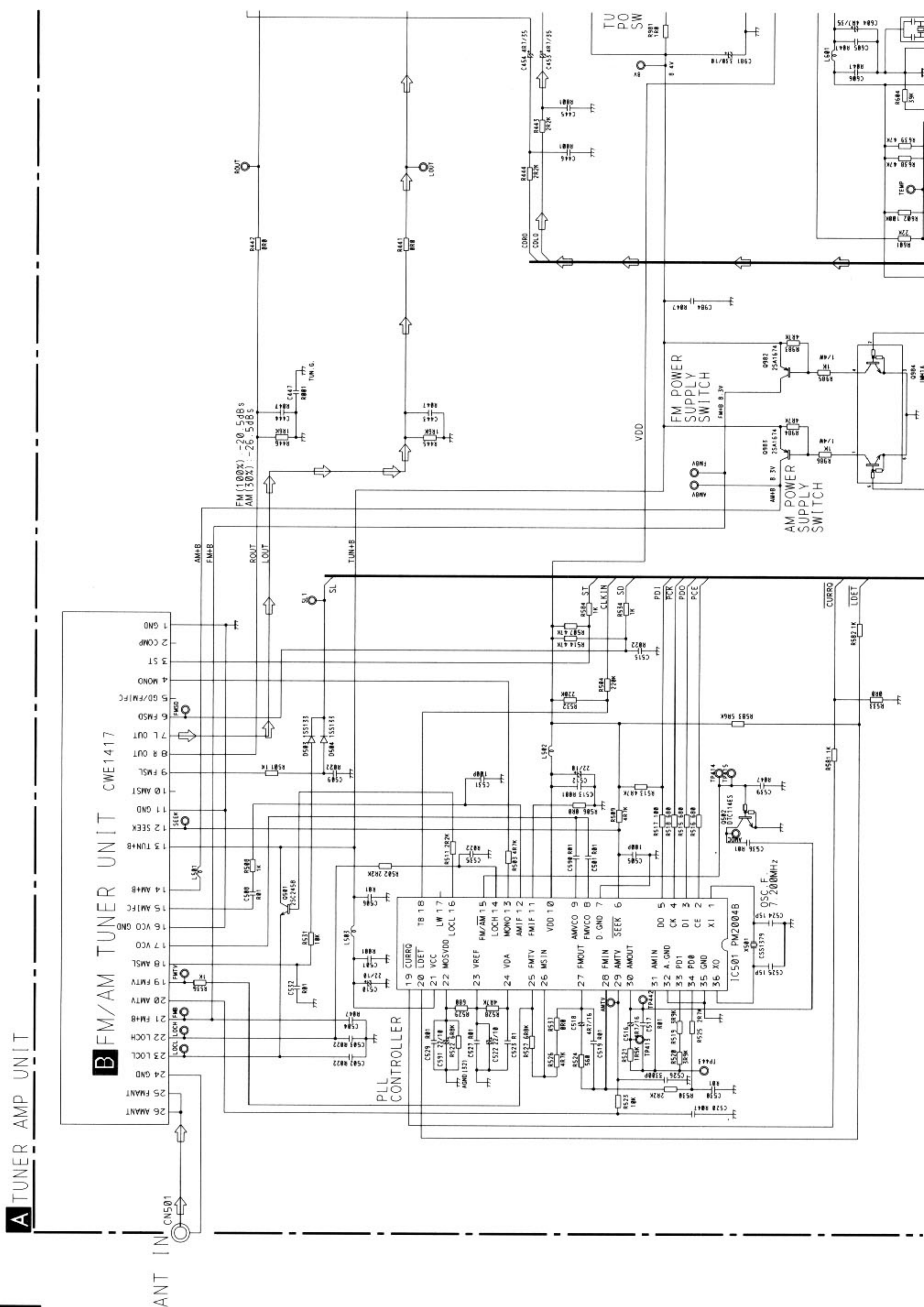
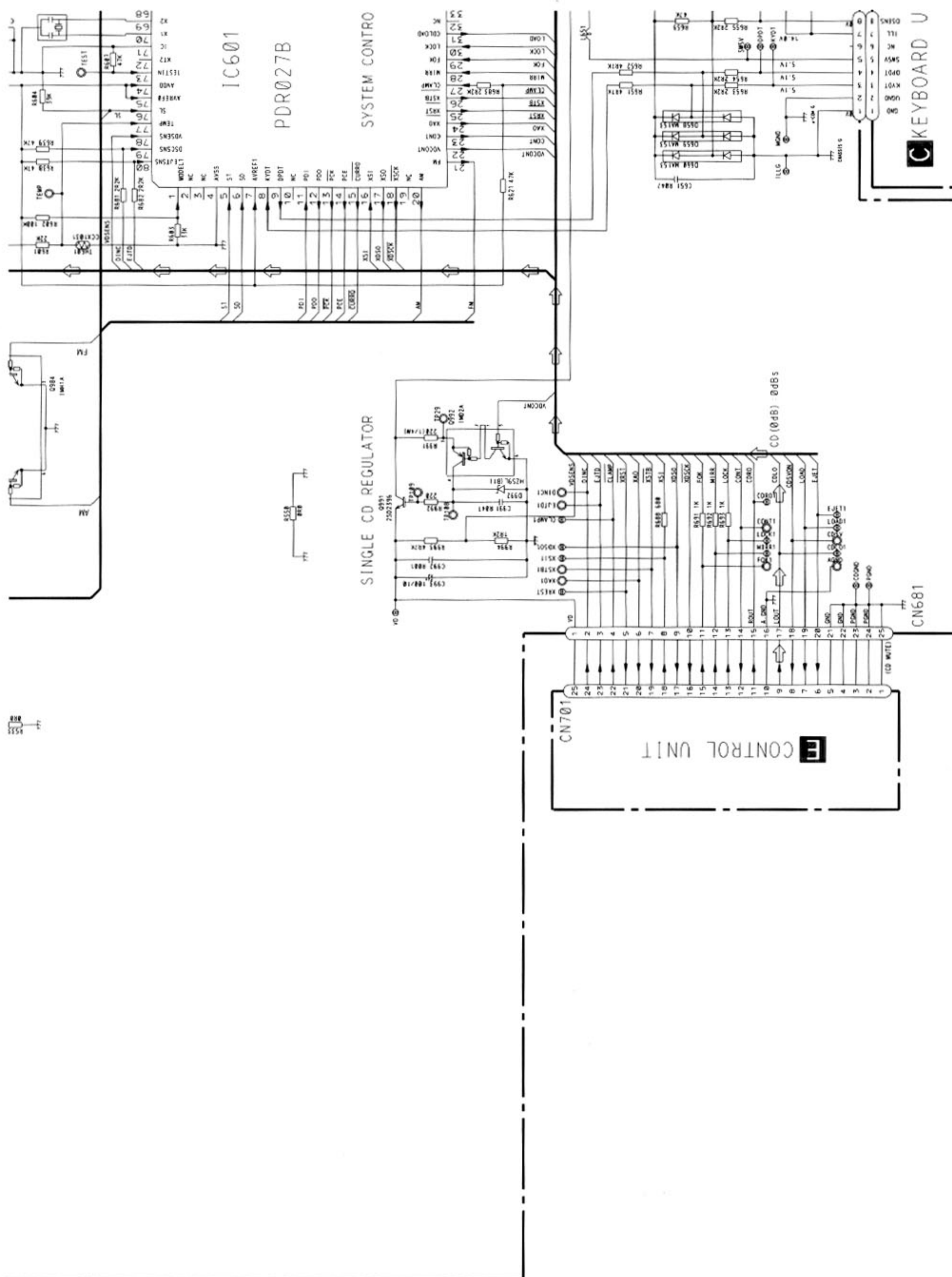


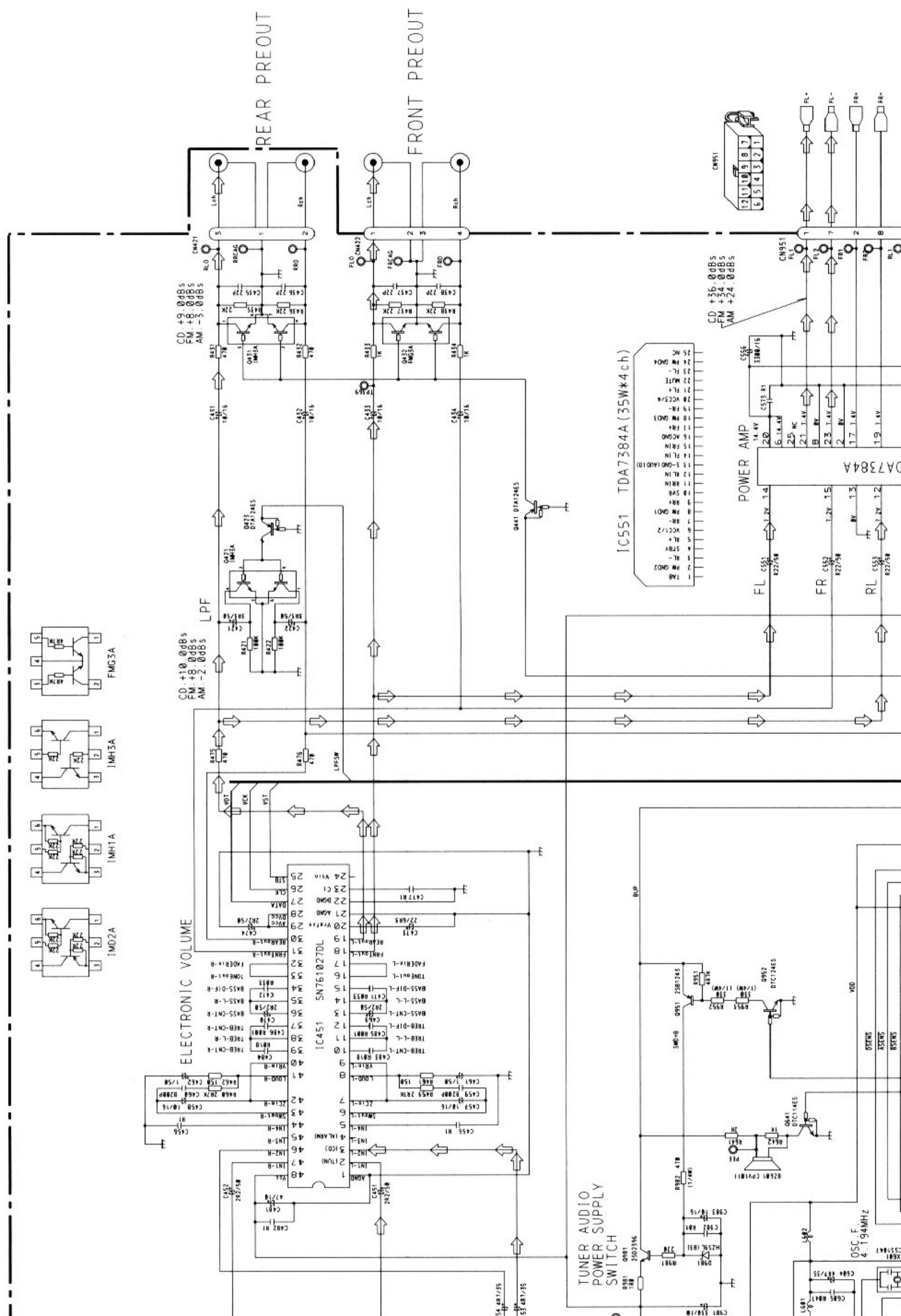
Fig. 10





A-a A-b

Fig. 11



A-a A-b

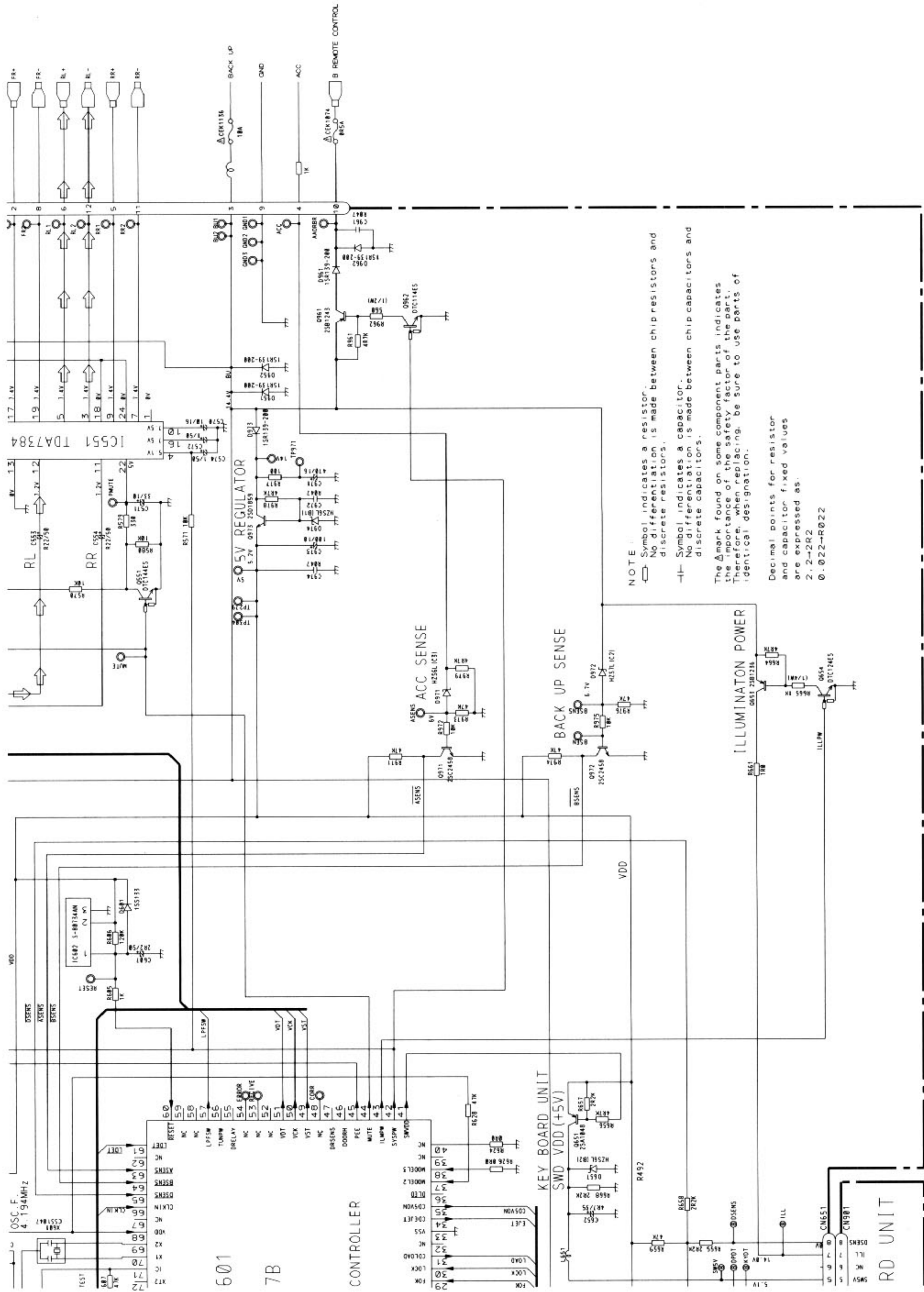
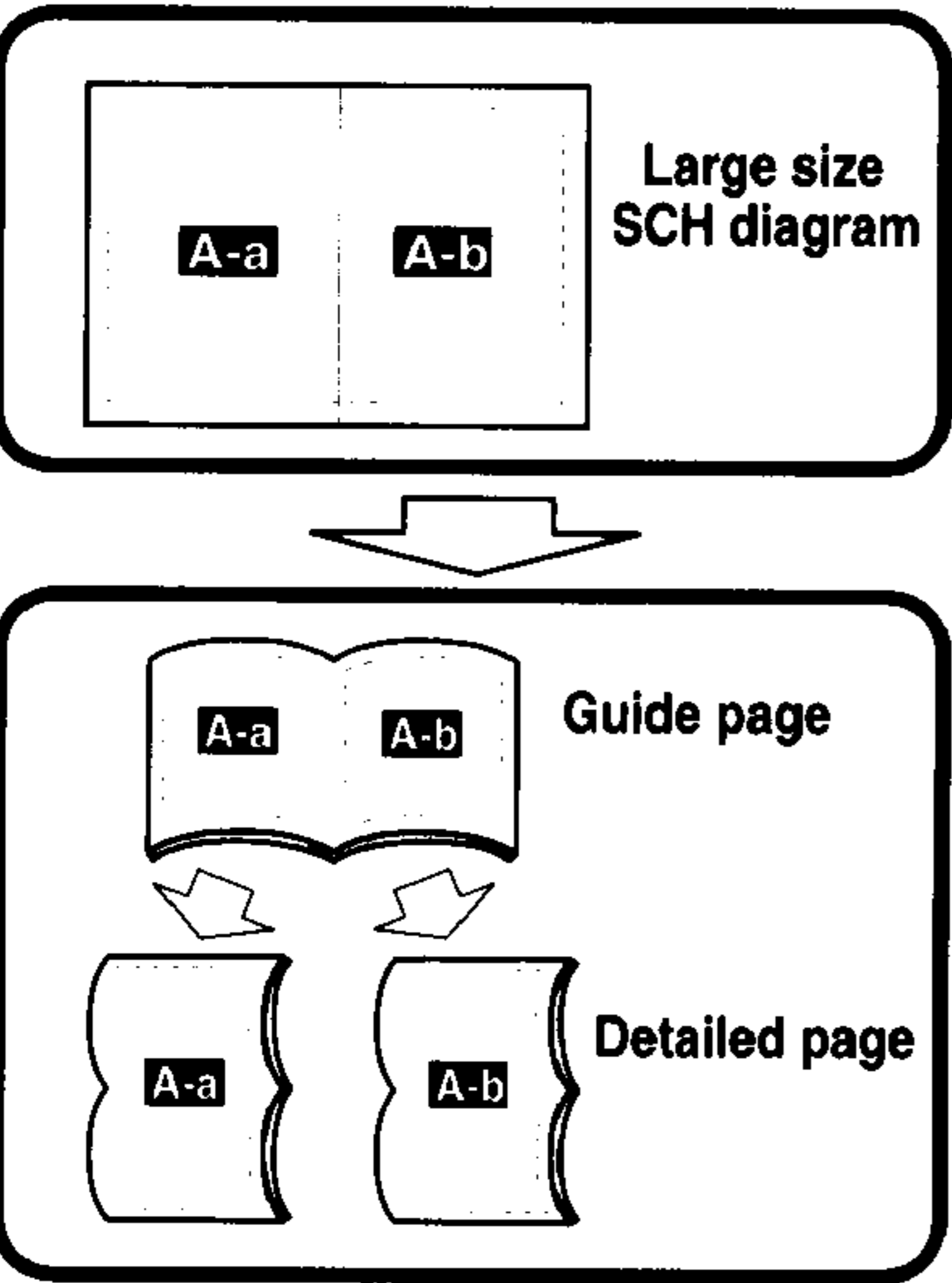


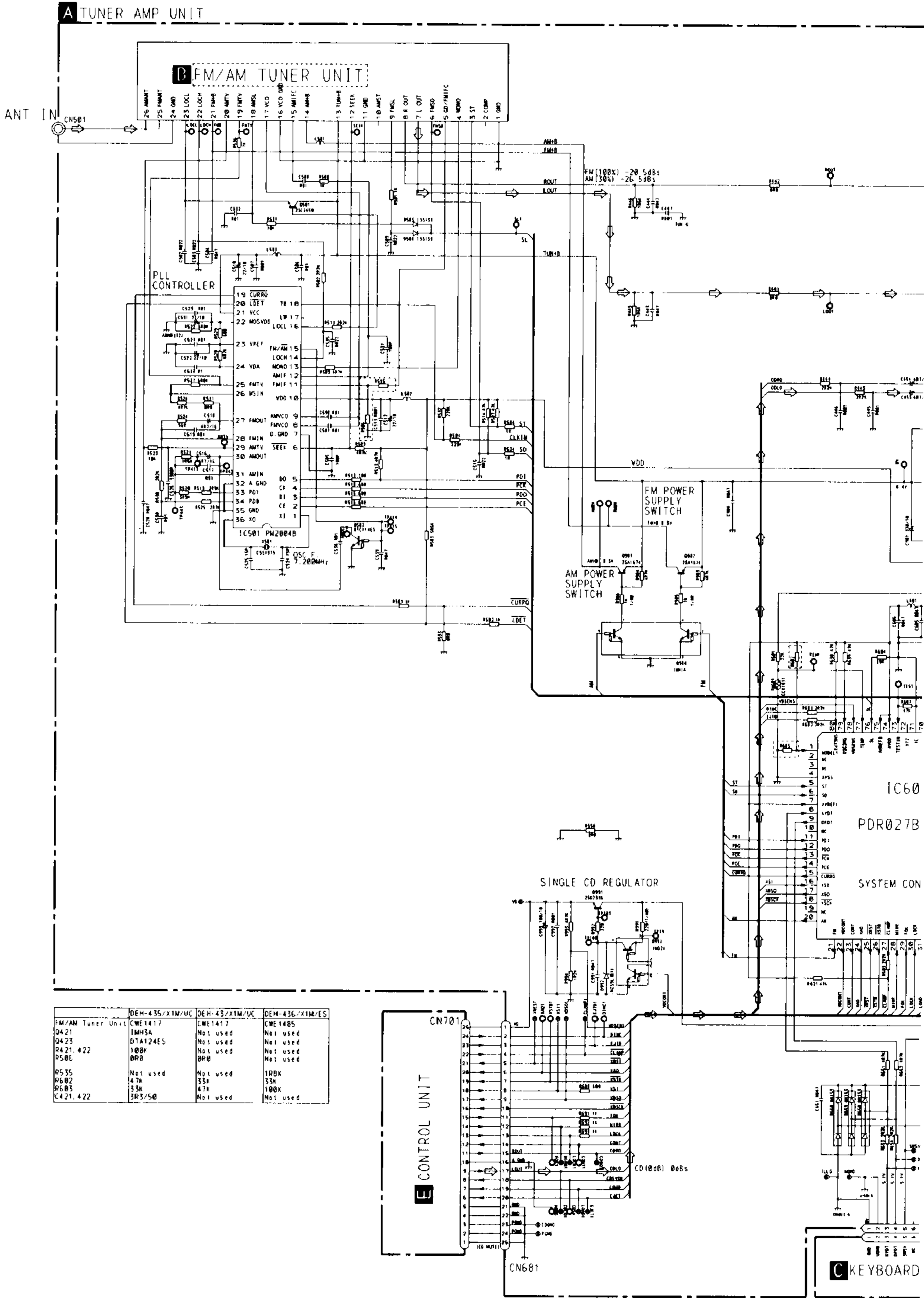
Fig. 12

A-b

3.3 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)
(DEH-435/X1M/UC, 43/X1M/UC, 436/X1M/ES)



A-a



A-b

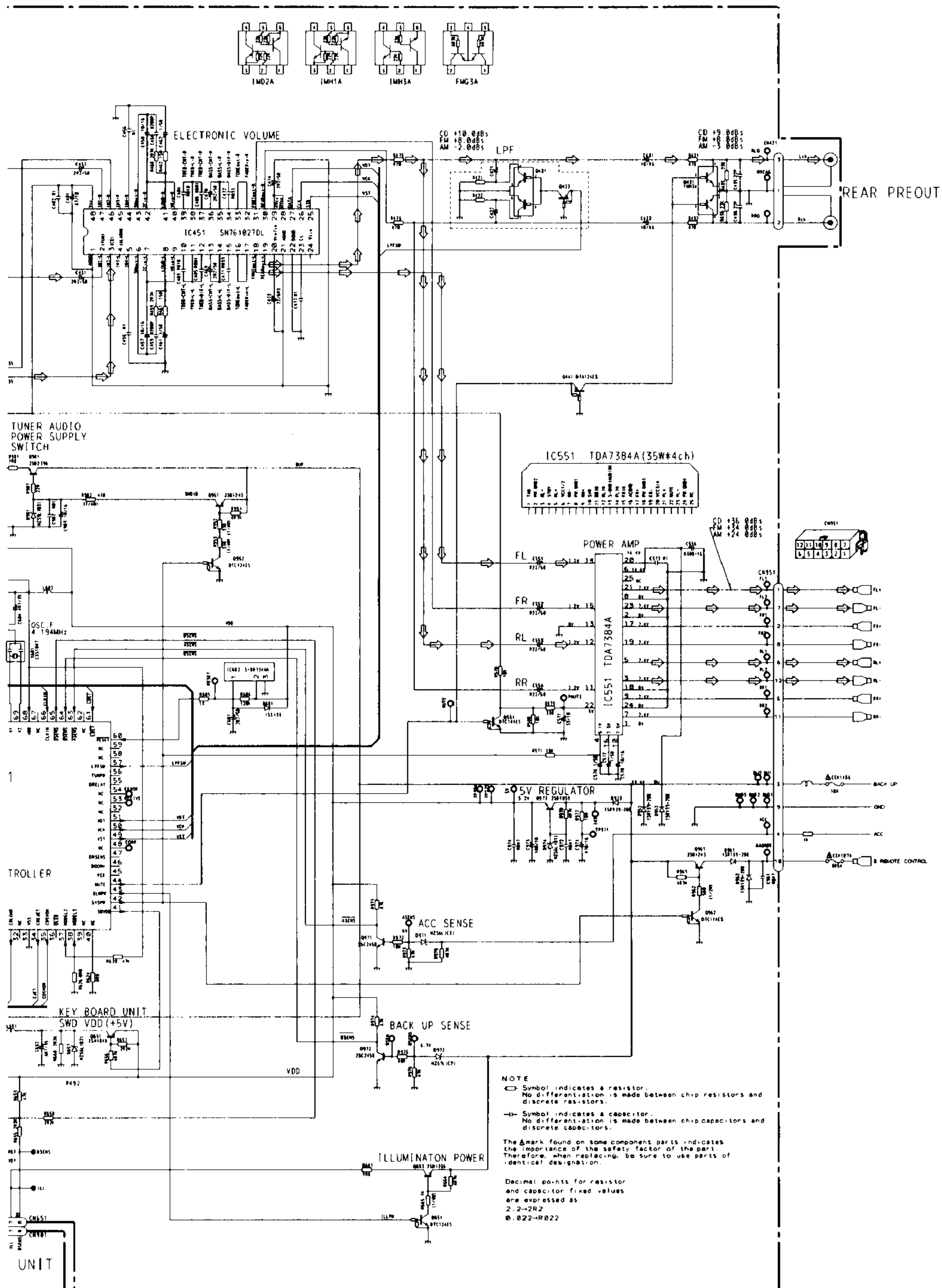
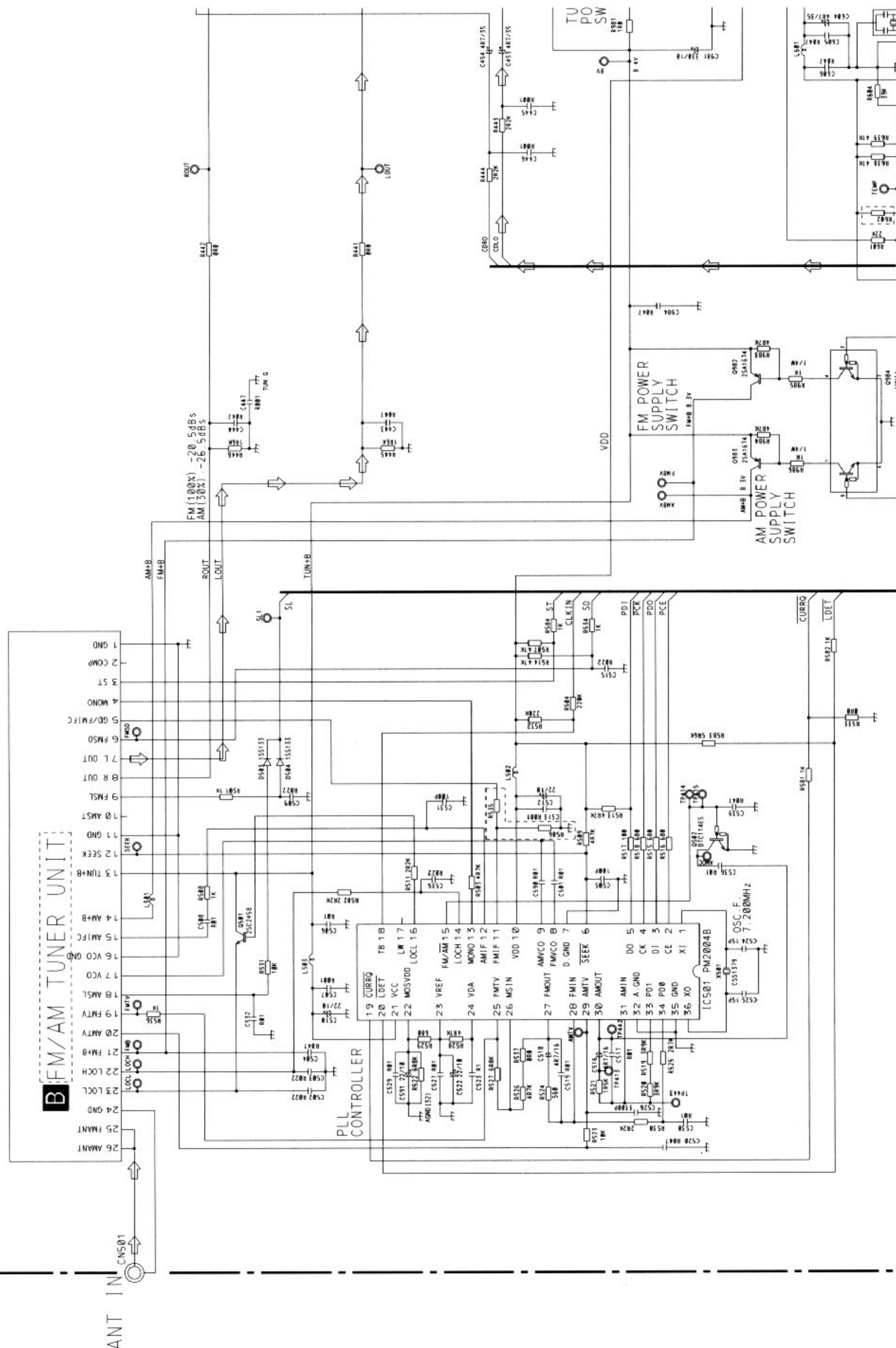


Fig. 13

ANT



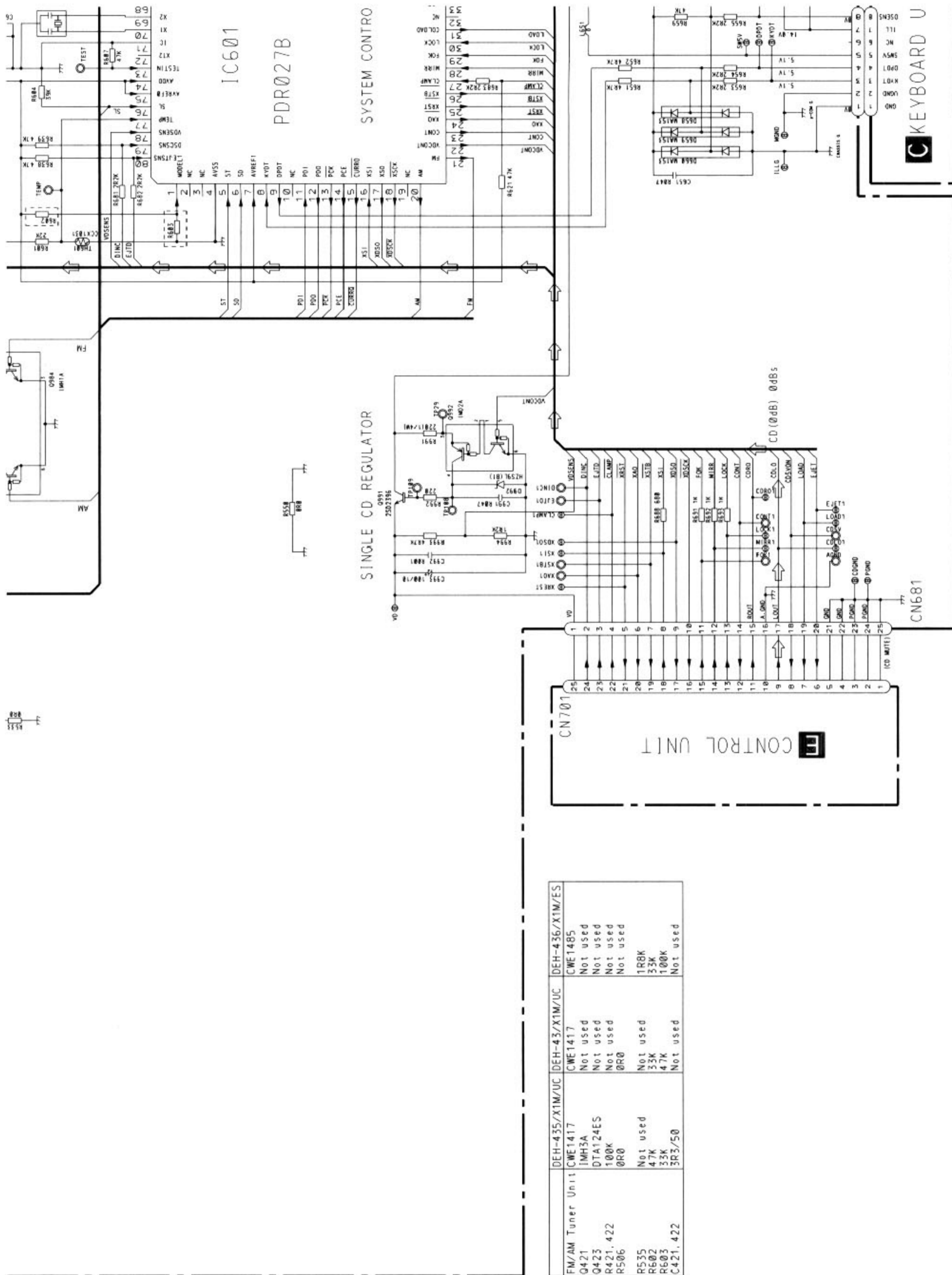
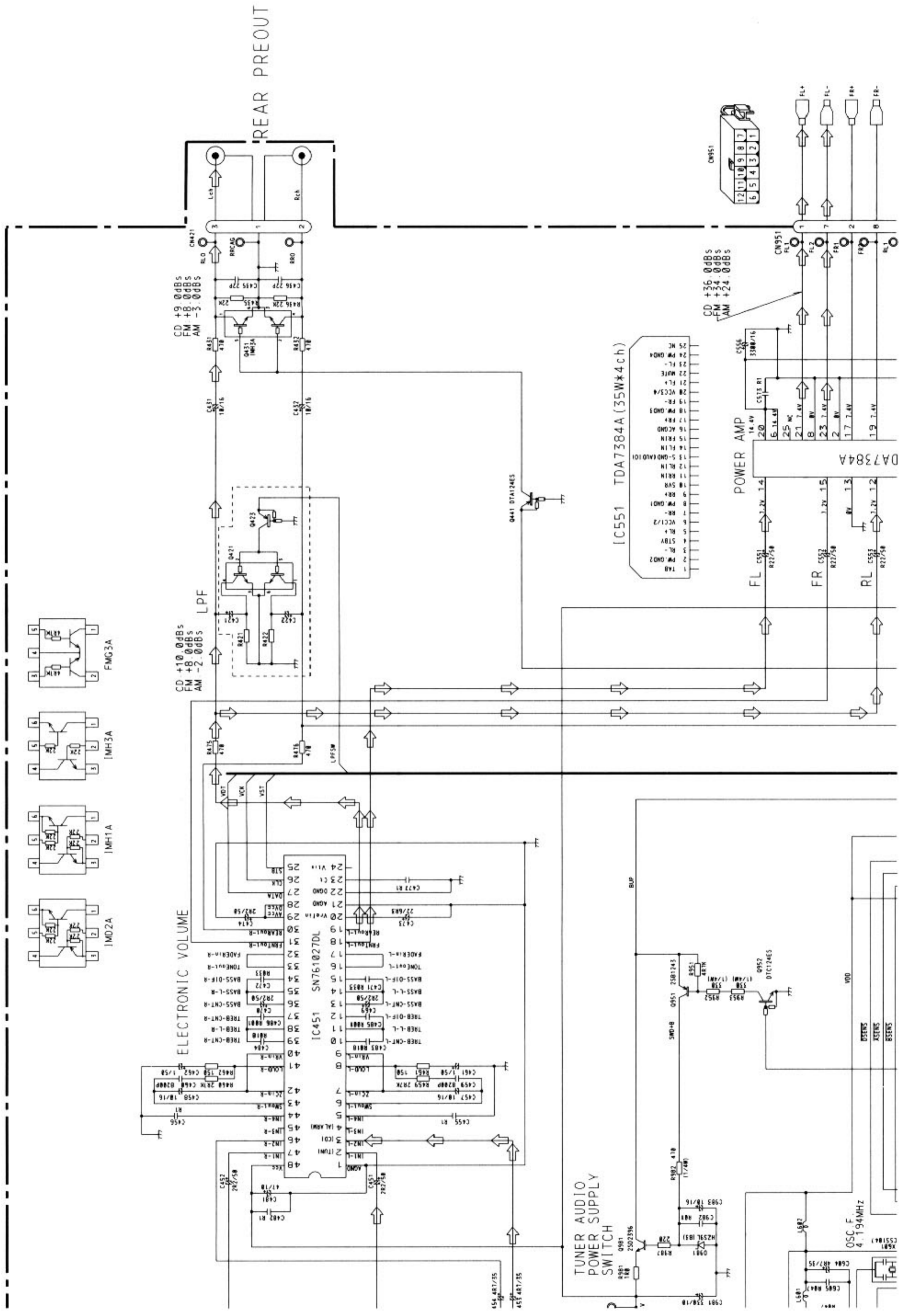


Fig. 14



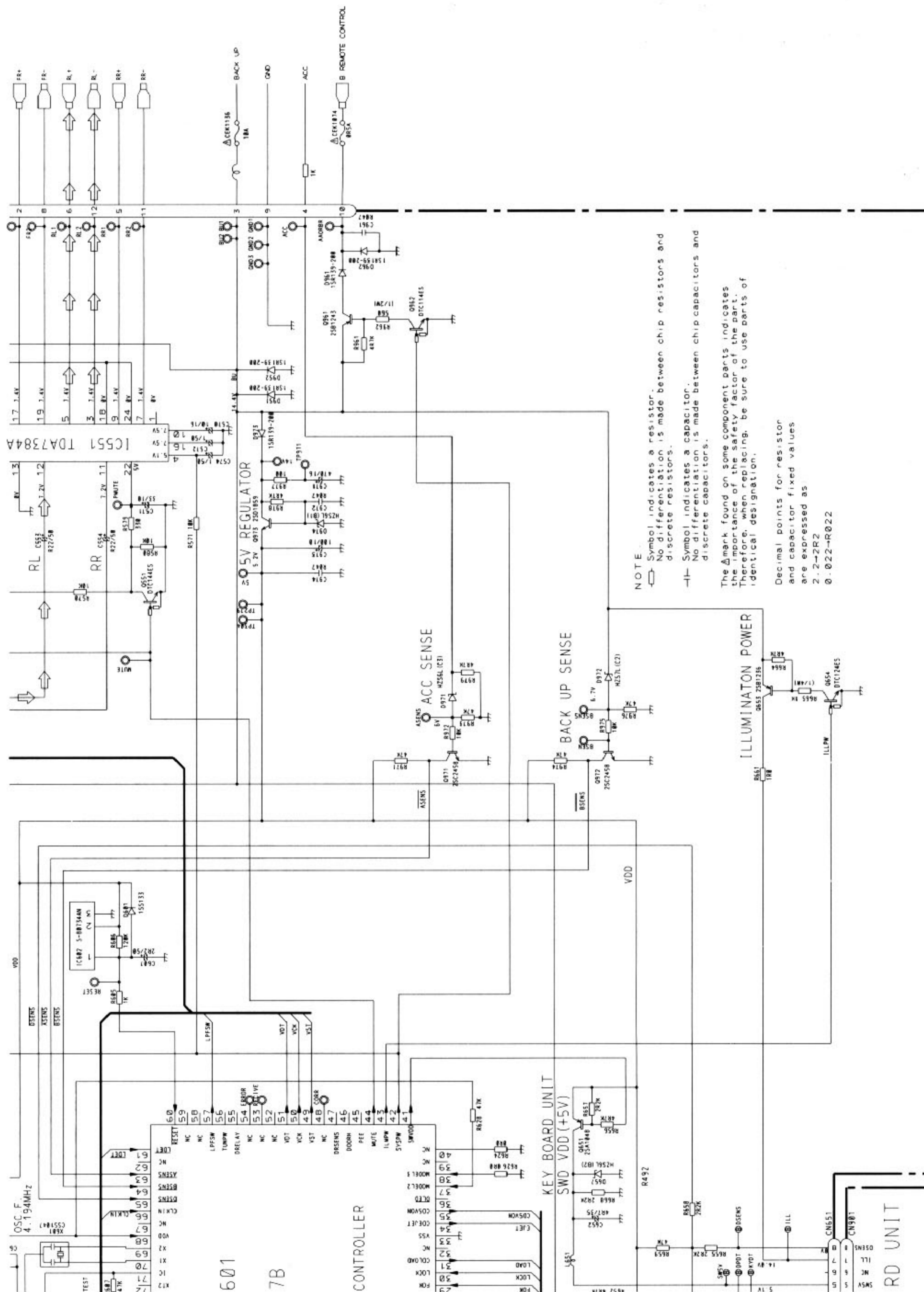
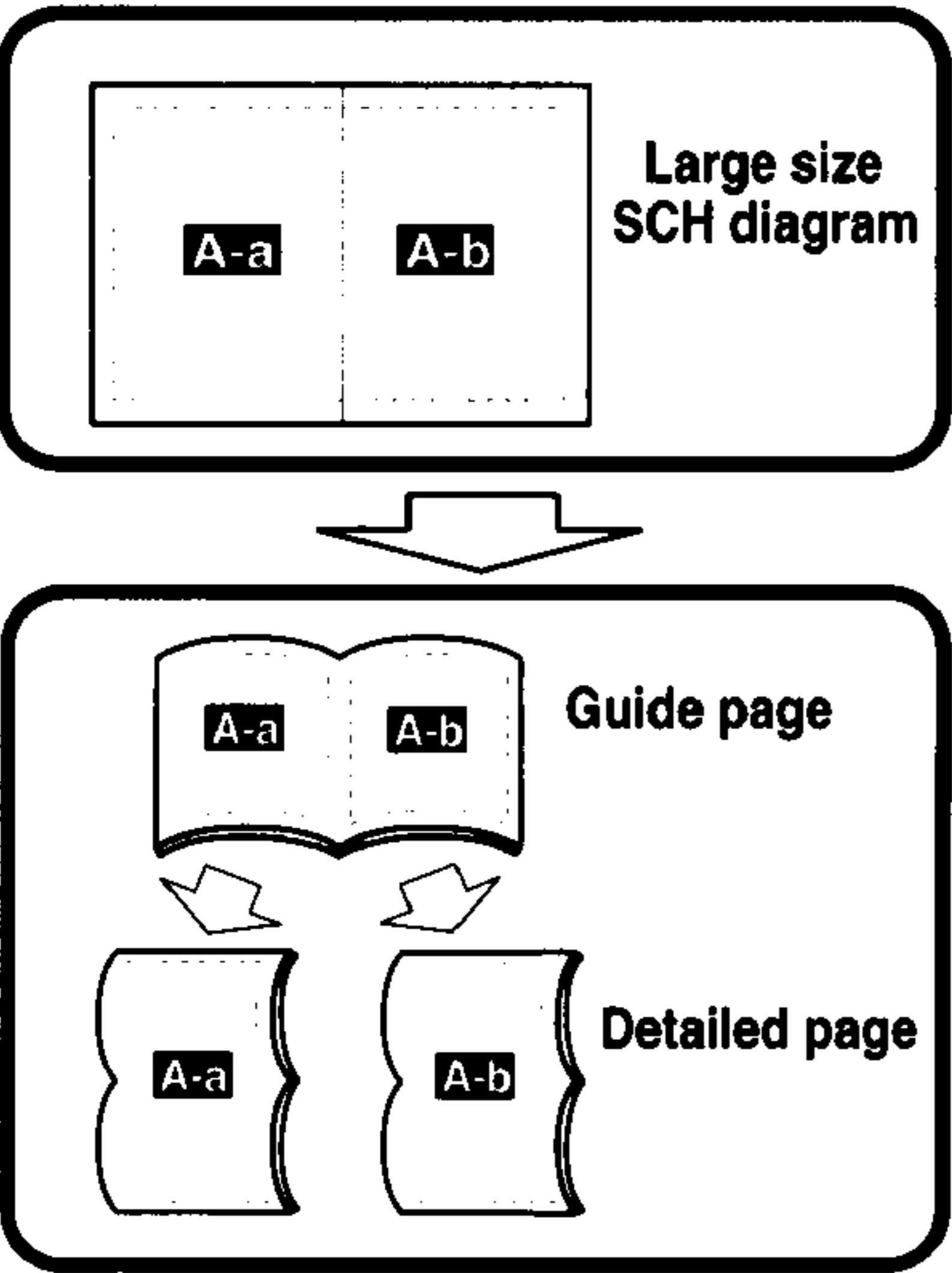
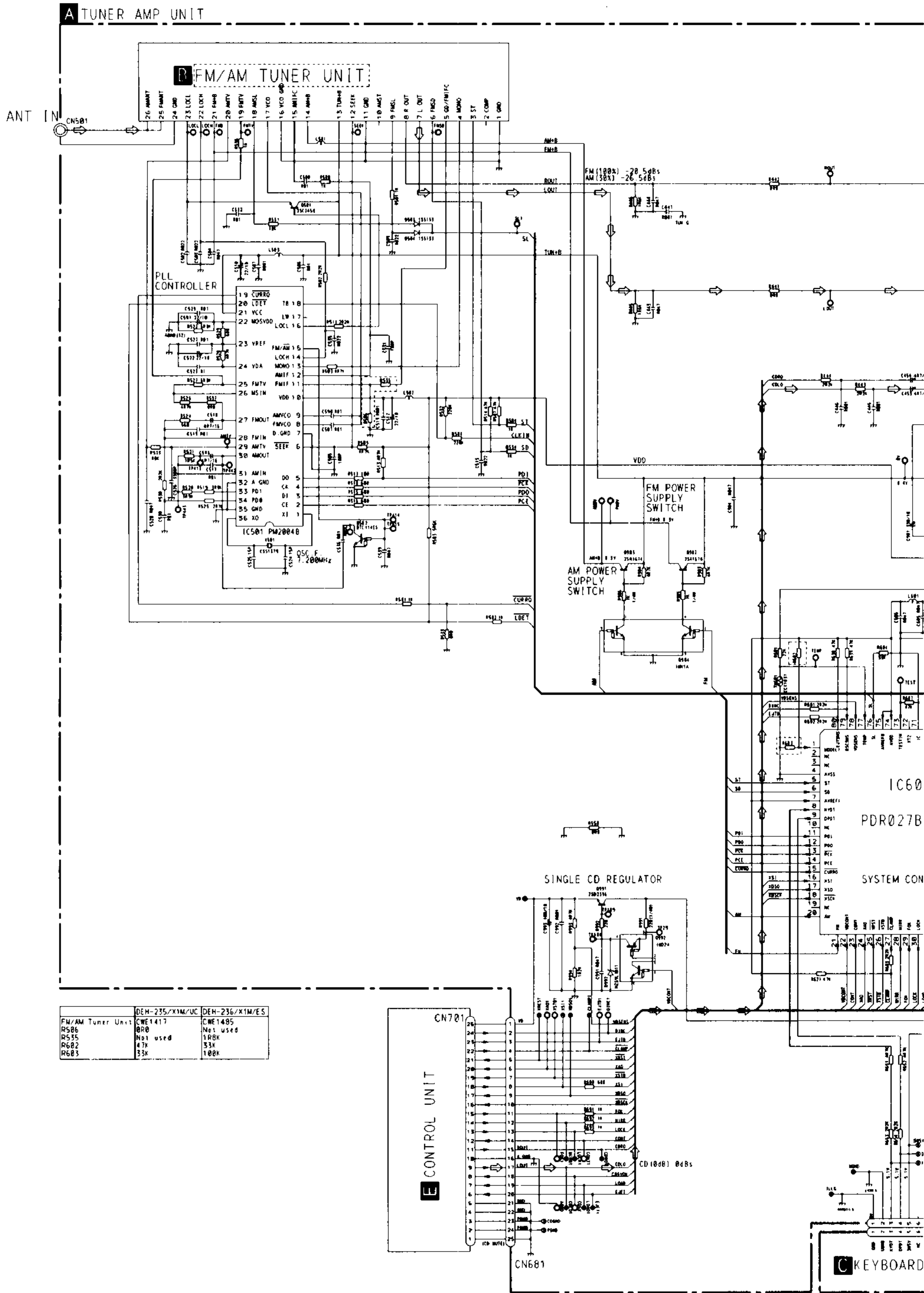


Fig. 15

3.4 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)
(DEH-235/X1M/UC, 236/X1M/ES)



A-a



A-b

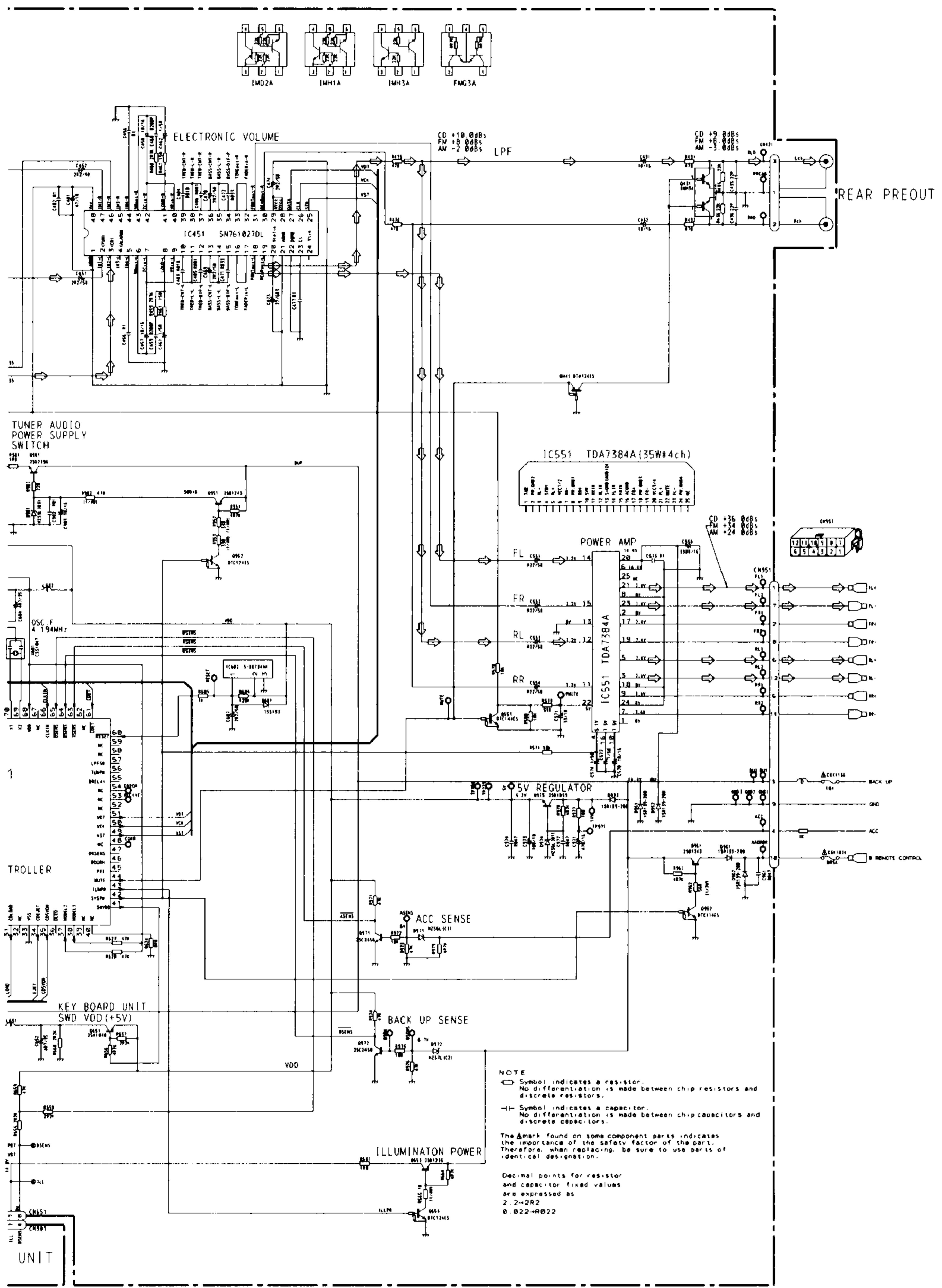
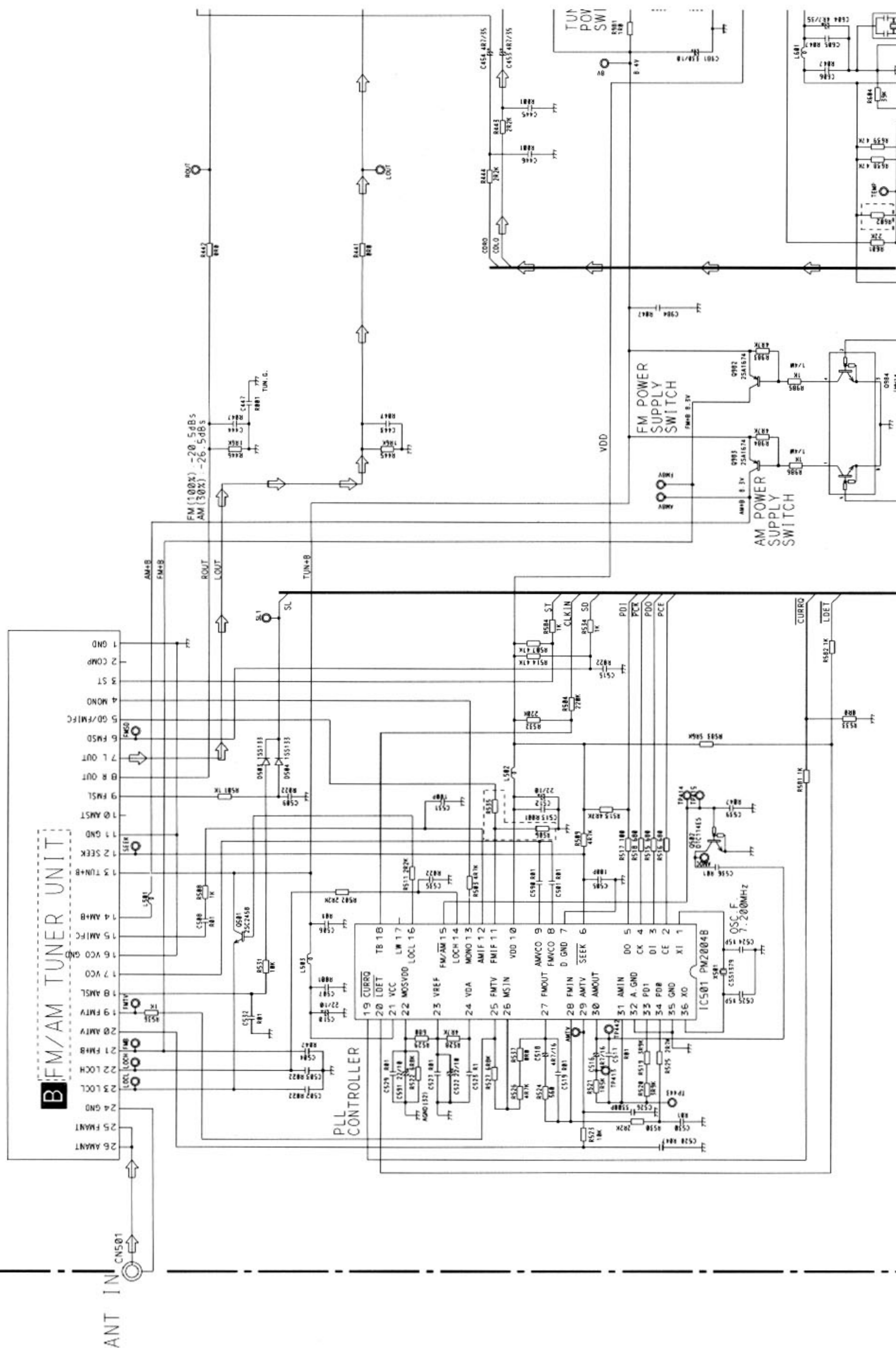
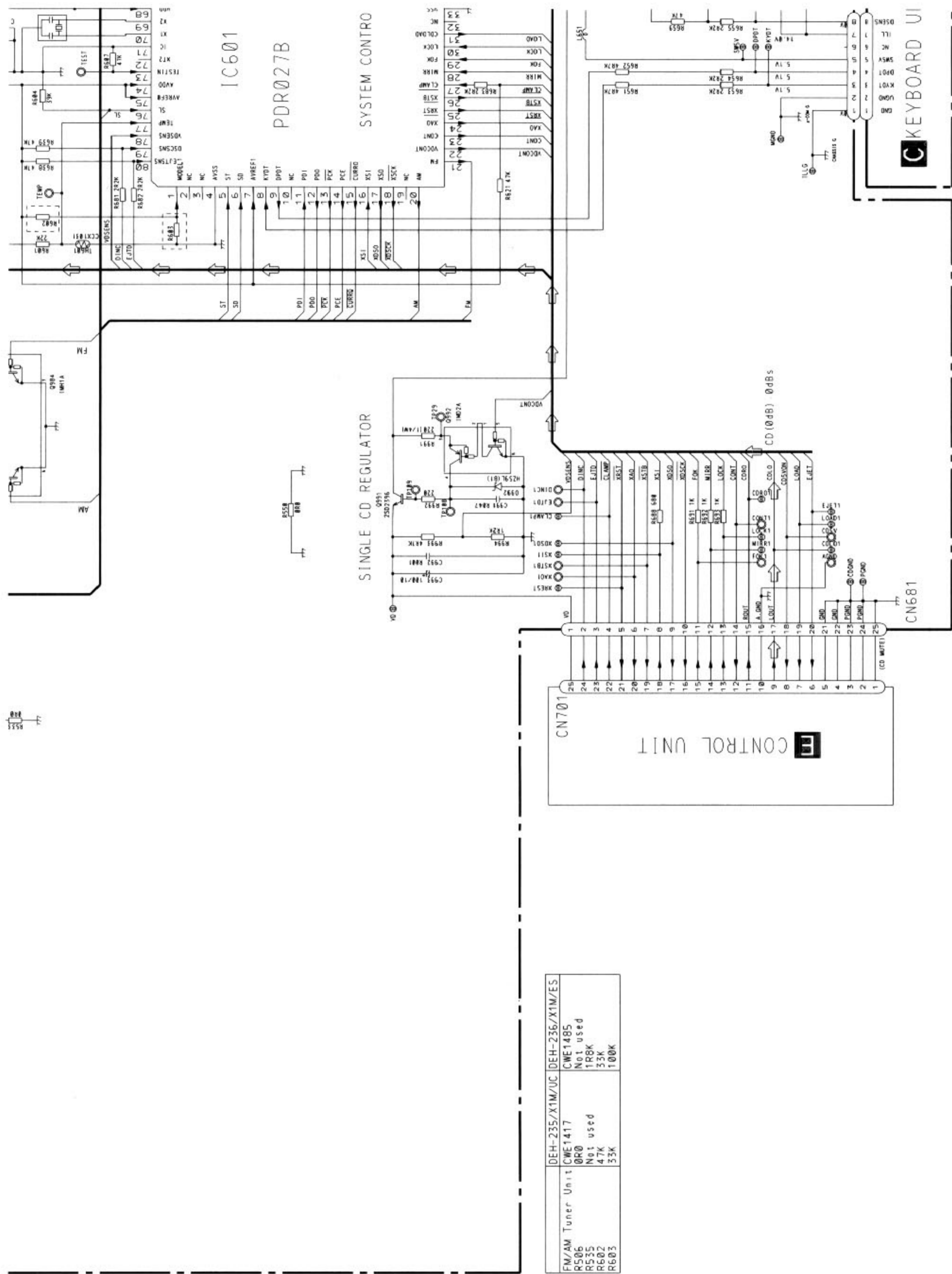


Fig. 16

ANT IN-
CN501

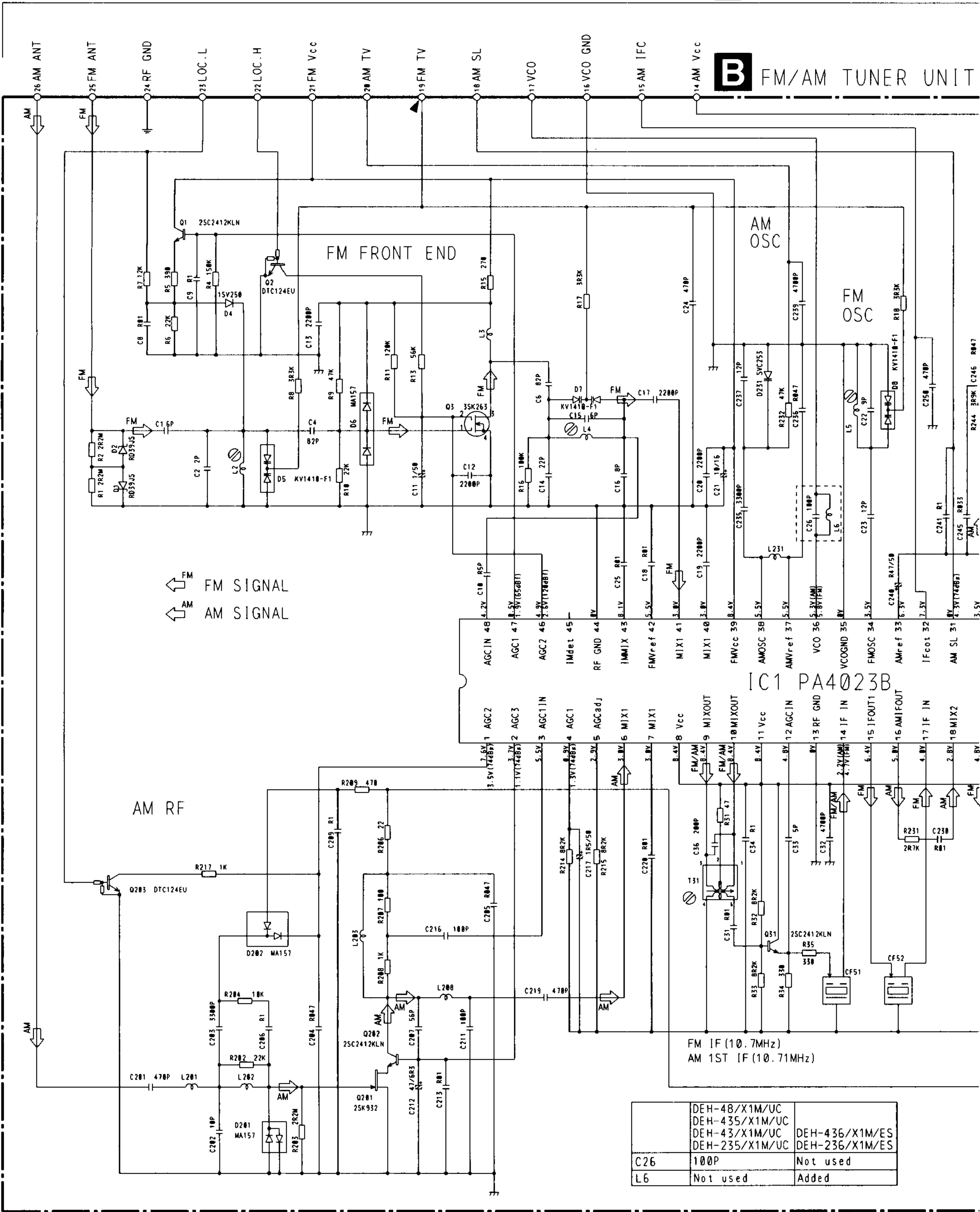


A-a A-b

Fig. 17



3.5 FM/AM TUNER UNIT



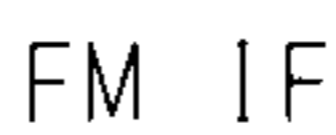
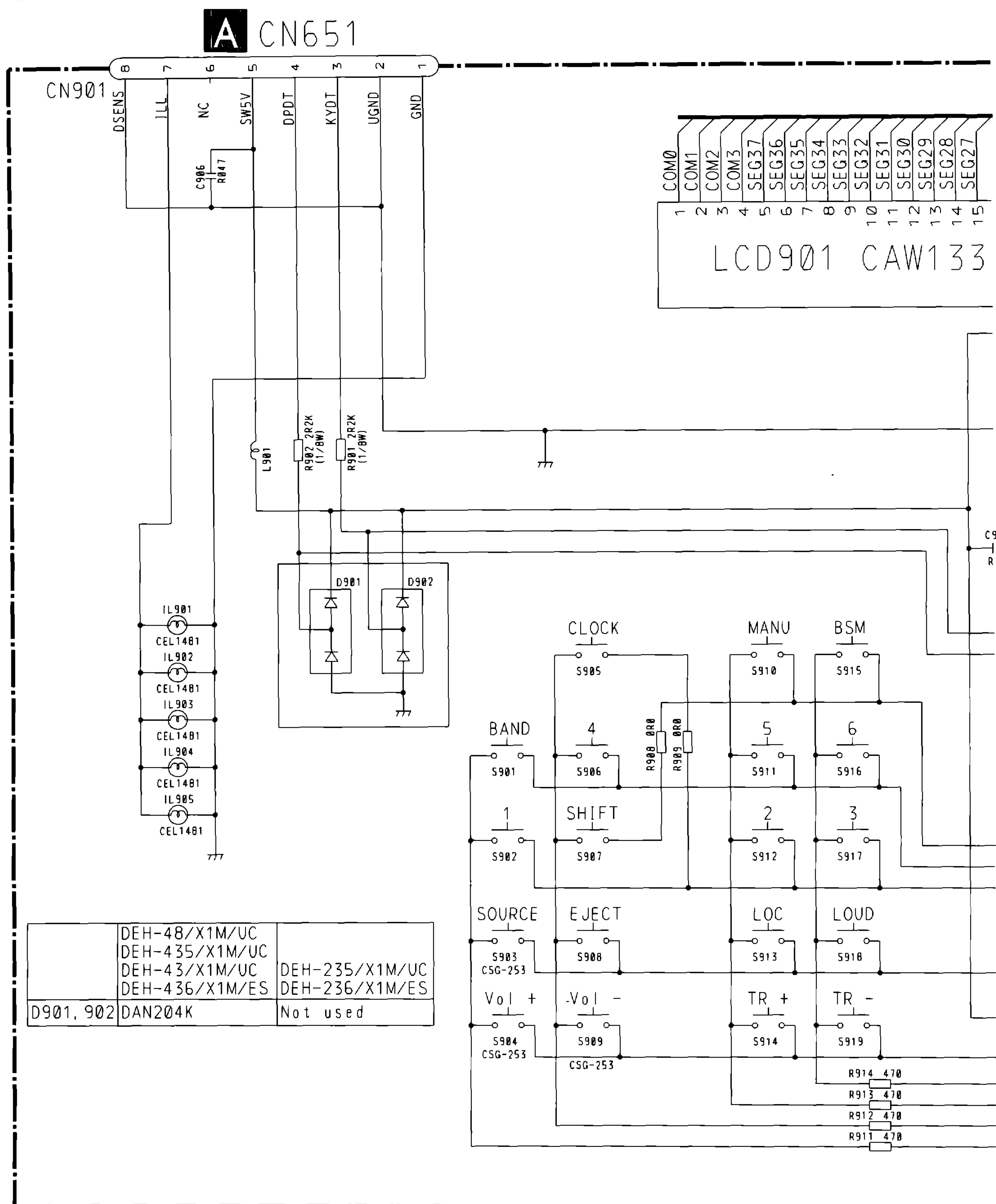


Fig. 19

3.6 KEYBOARD UNIT



C KEYBOARD UNIT

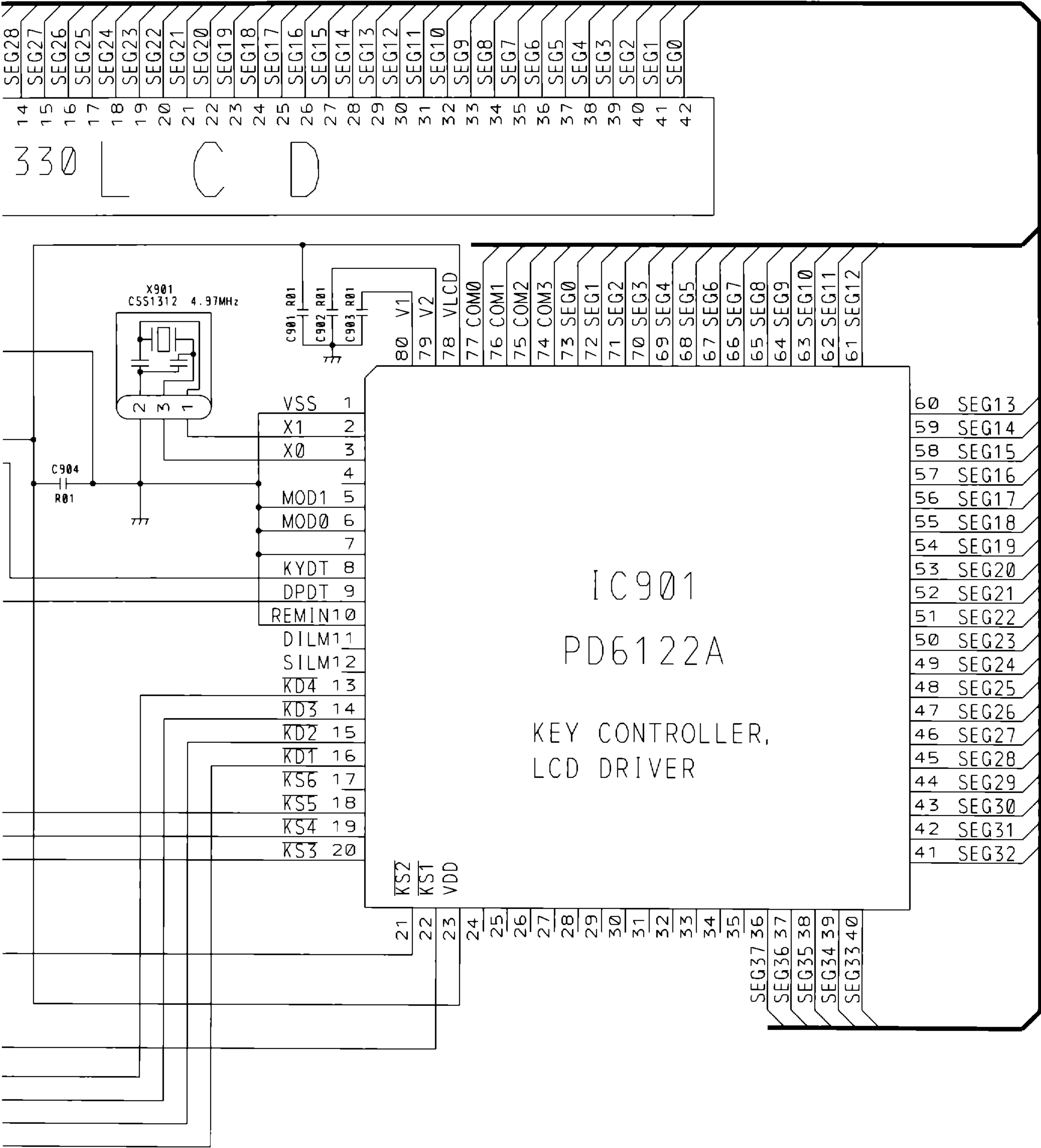


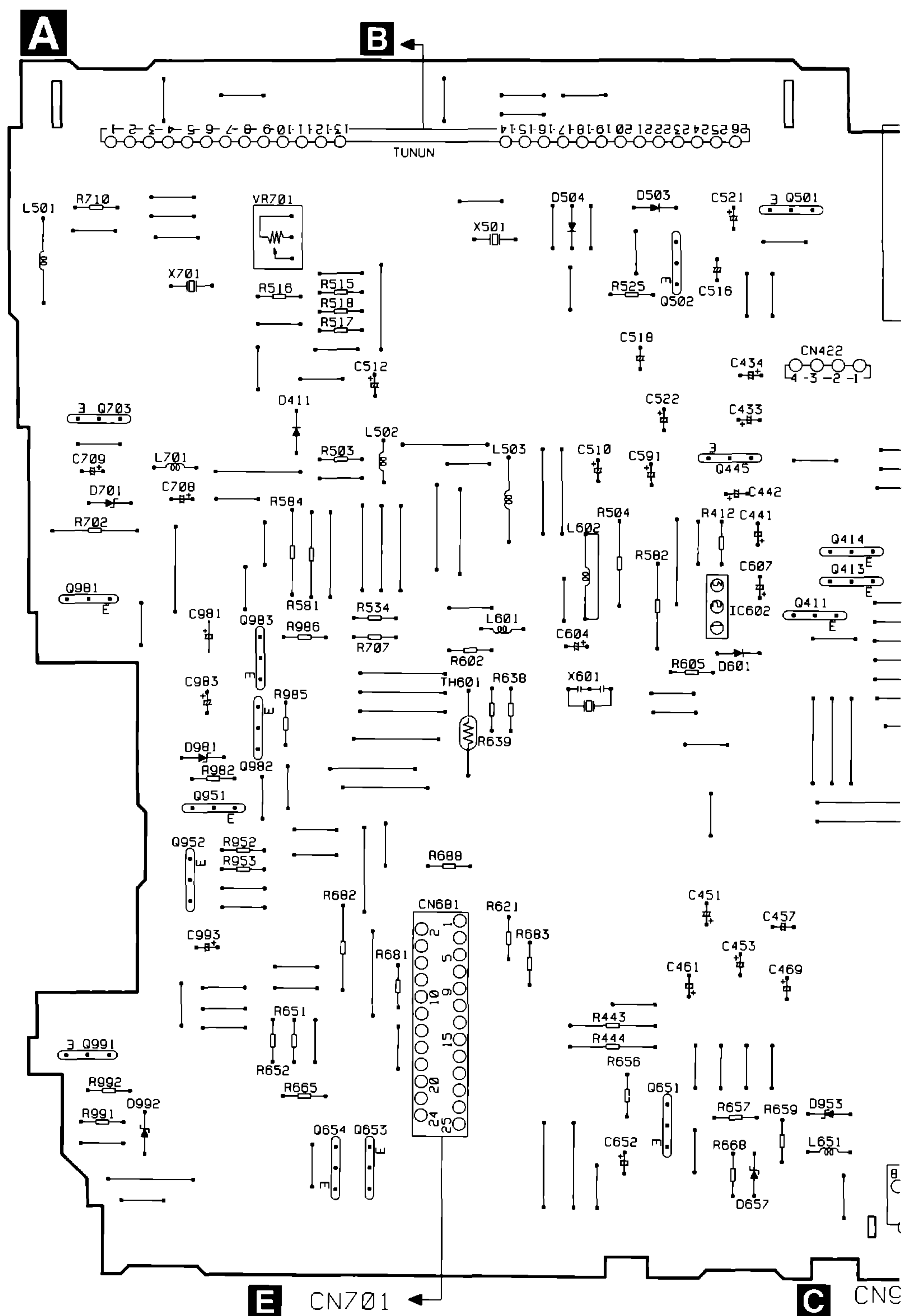
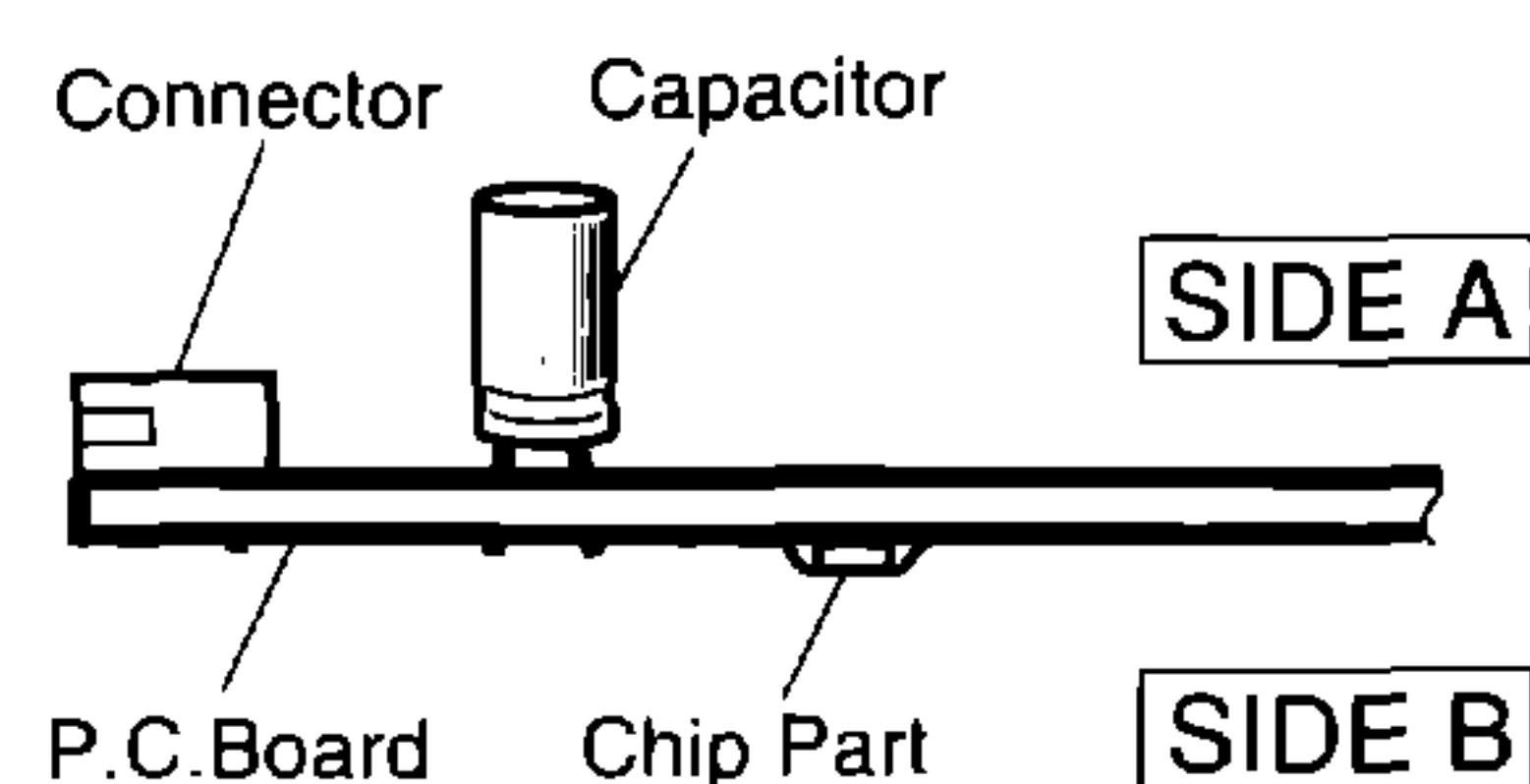
Fig. 20

4. PCB CONNECTION DIAGRAM

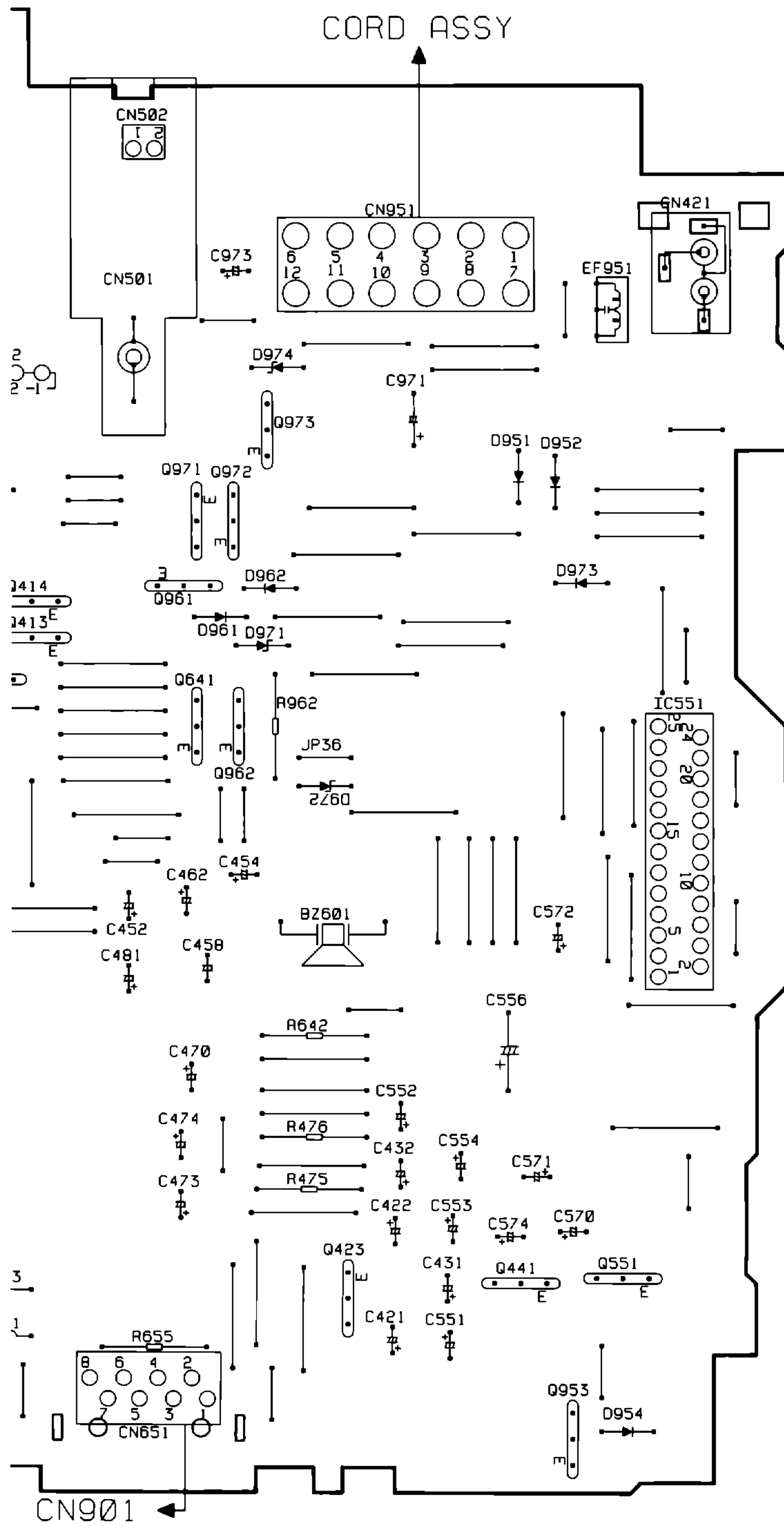
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

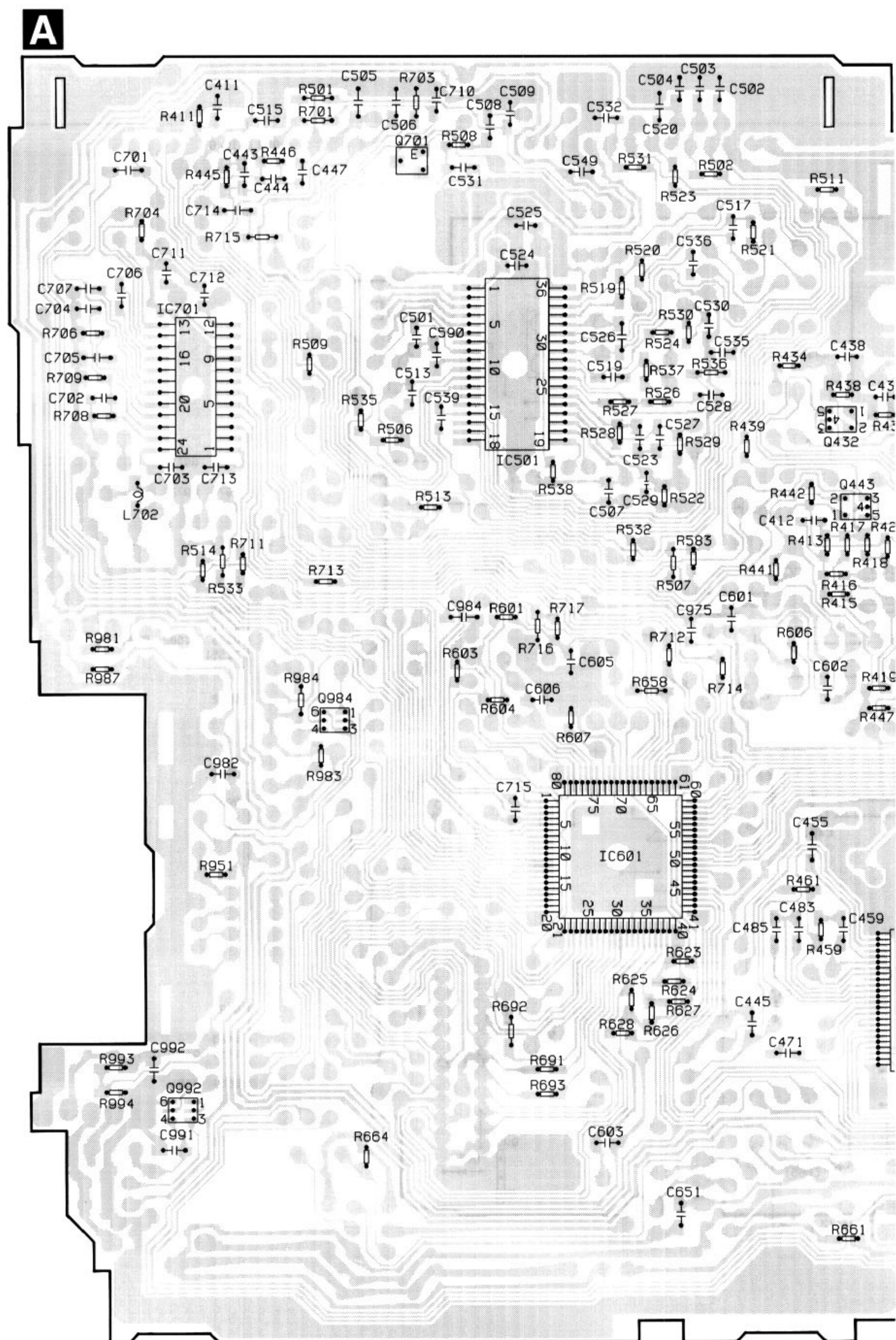


SIDE A

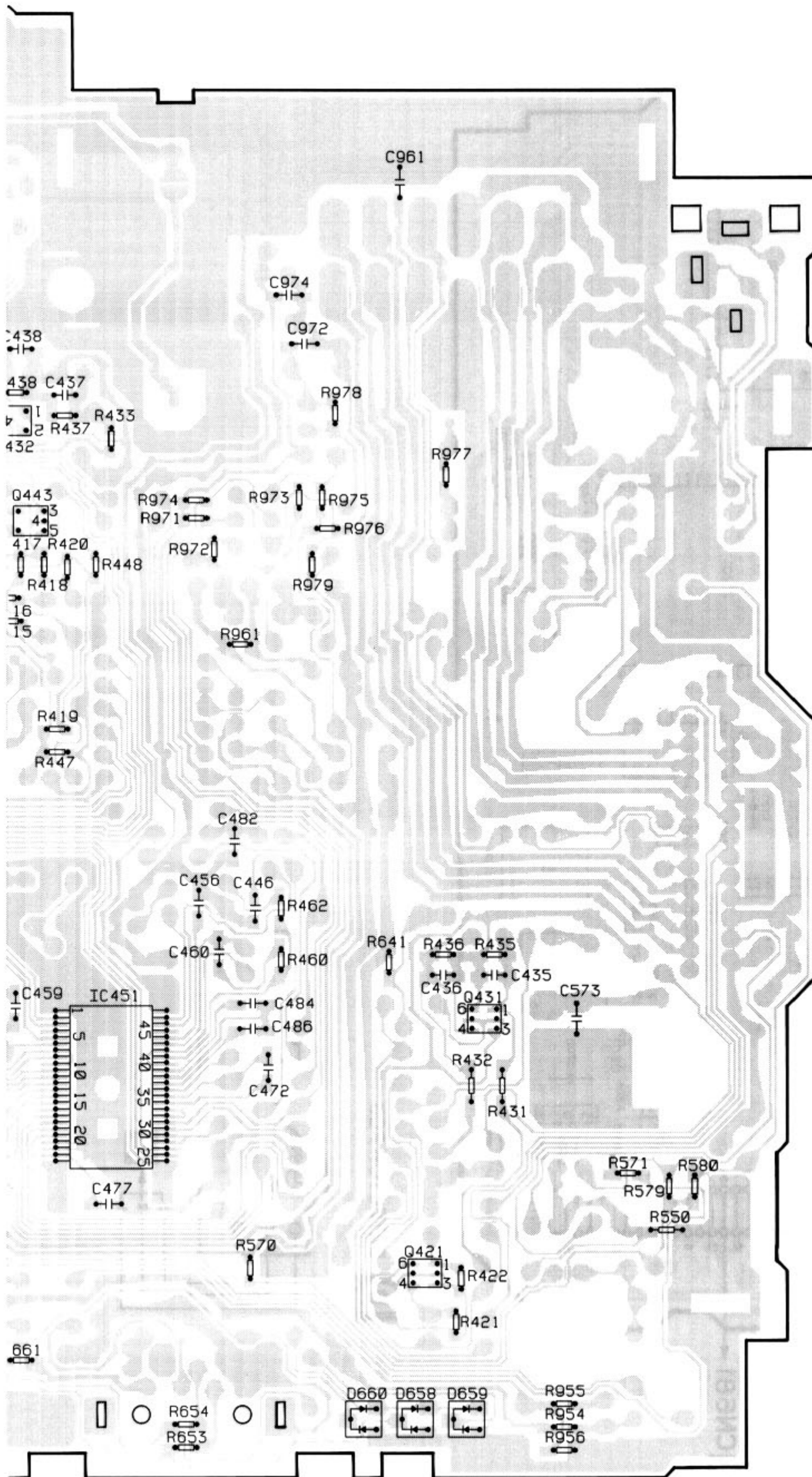


ADJ	IC, Q
VR701	Q501
	Q502
	Q703 Q973
	Q971 Q972
	Q445
	Q414
	Q961
	Q413
	Q981
	Q411
	Q983 IC602 Q641
	IC551
	Q962
	Q982
	Q951
	Q952
	Q991
	Q423
	Q651 Q441 Q551
	Q654 Q653
	Q953

Fig. 21



SIDE B



IC, Q

Q701

IC701

IC501

Q432

Q443

Q984

IC601

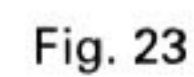
Q431
IC451

Q992

Q421

Fig. 22

DE



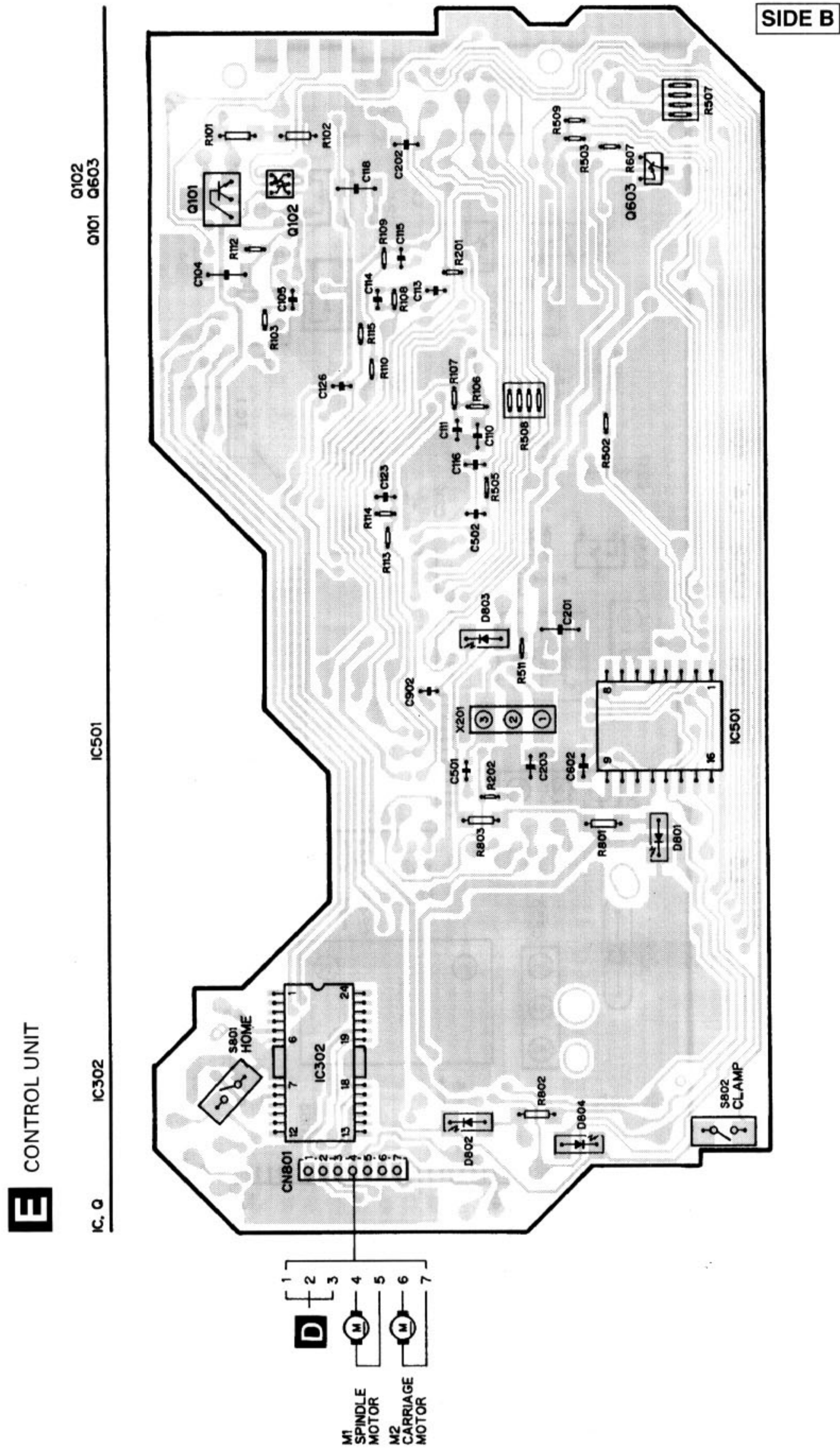


Fig. 24

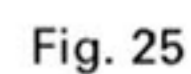
B

Fig. 25

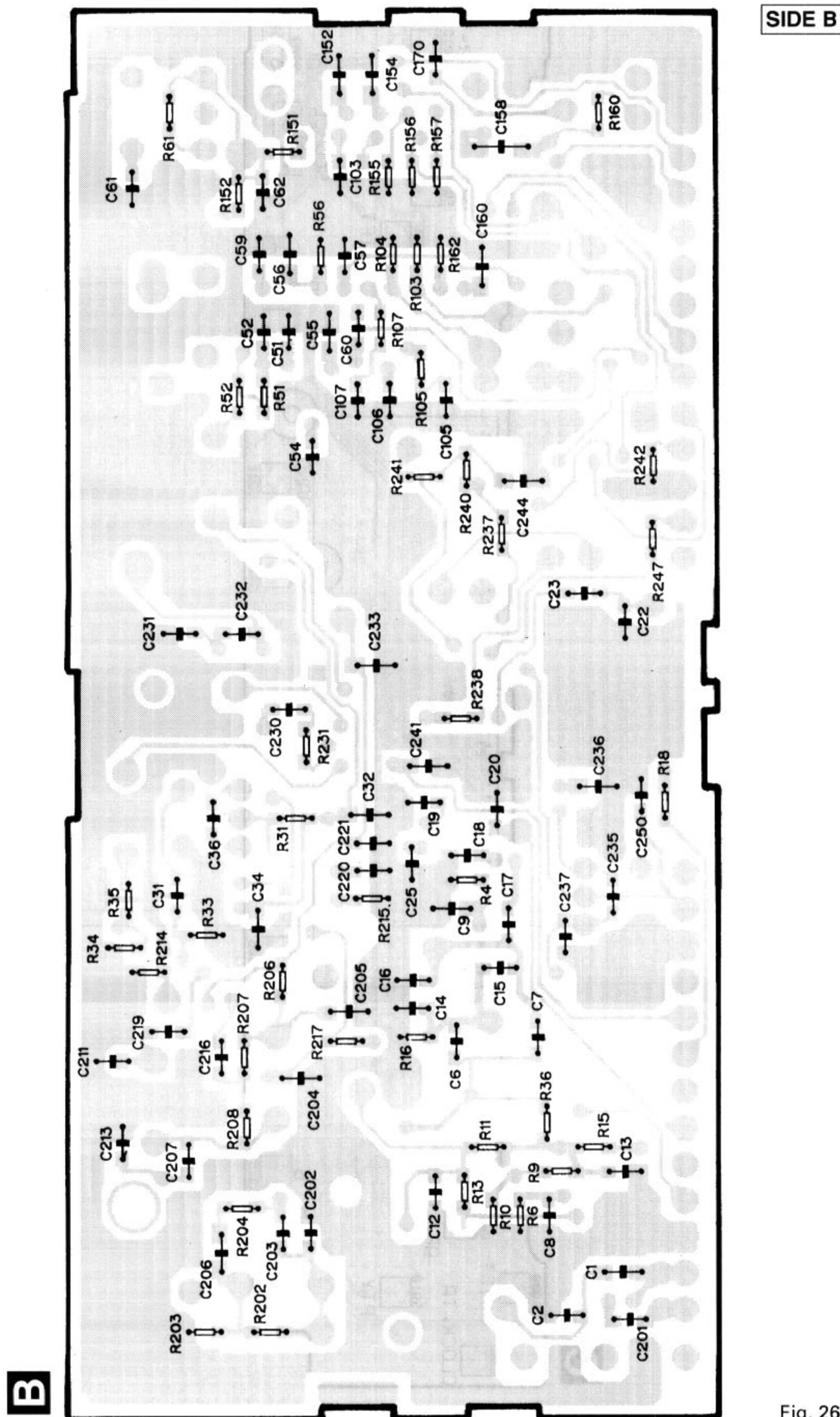


Fig. 26

4.4 KEYBOARD UNIT

SIDE A

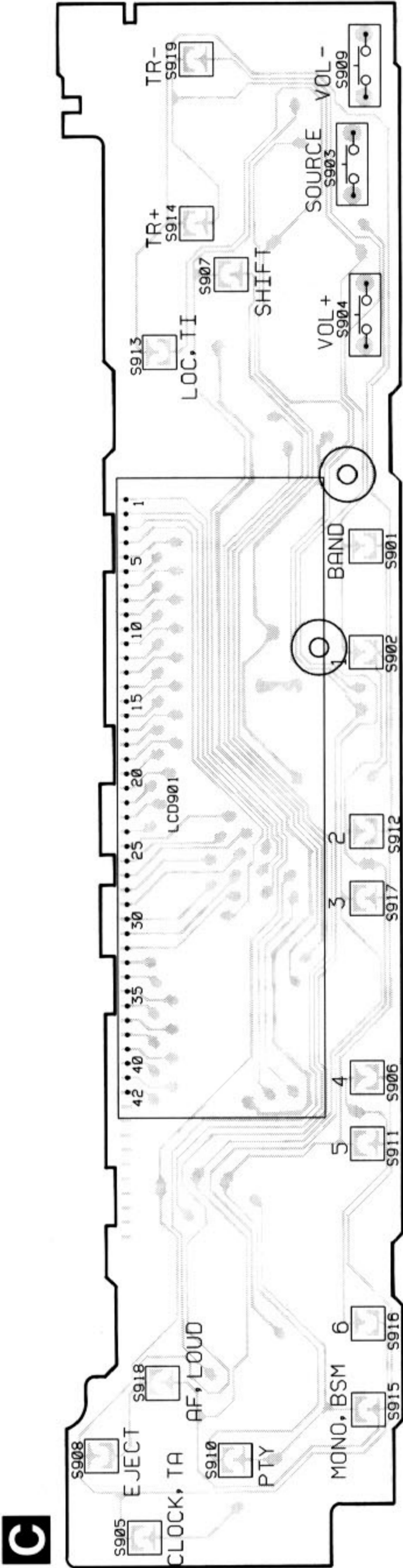


Fig. 27

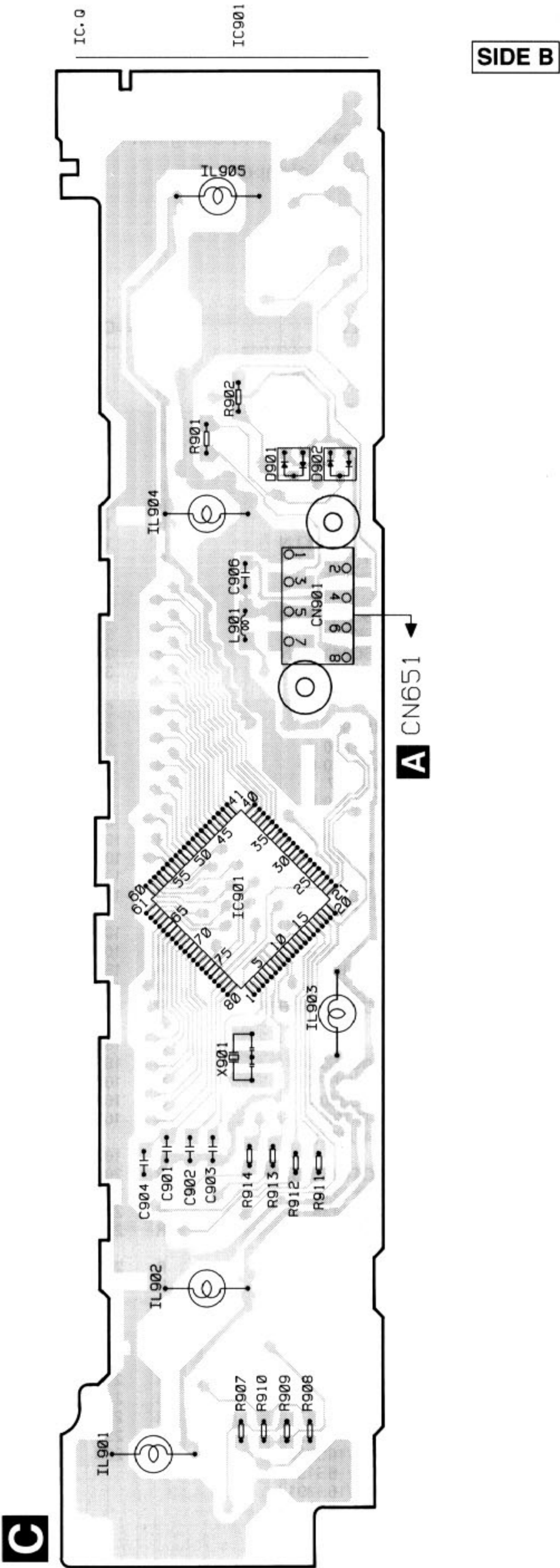


Fig. 28

5. ELECTRICAL PARTS LIST

(1)PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol & No.==Part Name			Part No.	====Circuit Symbol & No.==Part Name			Part No.
<div><div>B</div><div>Unit Number : CWE1417(Except for DEH-436/X1M/ES, 236/X1M/ES) Unit Number : CWE1485(DEH-436/X1M/ES, 236/X1M/ES) Unit Name : FM/AM Tuner Unit</div></div>				R	7		RS1/16S123J
				R	8		RS1/16S332J
				R	9		RS1/16S473J
				R	10		RS1/16S223J
				R	11		RS1/16S124J
MISCELLANEOUS				R	13		RS1/16S563J
IC	1	IC	PA4023B	R	15		RS1/16S271J
IC	2	IC	PA4024A	R	16		RS1/16S104J
Q	1	Transistor	2SC2412KLN	R	17		RS1/16S332J
Q	2	Transistor	DTC124EU	R	18		RS1/16S332J
Q	3	FET	3SK263				
				R	31		RS1/16S470J
Q	31	Transistor	2SC2412KLN	R	32		RS1/16S822J
Q	201	FET	2SK932	R	33		RS1/16S822J
Q	202	Transistor	2SC2412KLN	R	34		RS1/16S331J
Q	203	Transistor	DTC124EU	R	35		RS1/16S331J
D	1	Diode	RD39JS				
				R	51		RS1/16S271J
D	2	Diode	RD39JS	R	52		RS1/16S560J
D	4	Diode	1SV250	R	55		RS1/16S102J
D	5	Diode	KV1410-F1	R	56		RS1/16S823J
D	6	Diode	MA157	R	61		RS1/16S392J
D	7	Diode	KV1410-F1				
				R	62		RS1/16S273J
D	8	Diode	KV1410-F1	R	101		RS1/16S272J
D	201	Diode	MA157	R	102		RS1/16S682J
D	202	Diode	MA157	R	103		RS1/16S333J
D	231	Diode	SVC253	R	104		RS1/16S334J
L	2	Coil	CTC1108				
				R	105		RS1/16S683J
L	3	Inductor	LCTB2R2K2125	R	107		RS1/16S222J
L	4	Coil	CTC1108	R	151		RS1/16S222J
L	5	Coil	CTC1107	R	152		RS1/16S393J
L	6	Inductor	LCTBR15K1608	R	155		RS1/16S273J
		(DEH-436/X1M/ES,236/X1M/ES)					
				R	156		RS1/16S243J
L	51	Ferri-Inductor	LAU150K	R	157		RS1/16S203J
L	201	Ferri-Inductor	LAU4R7K	R	160		RS1/16S222J
L	202	Ferri-Inductor	LAU330K	R	161		RS1/16S563J
L	203	Inductor	CTF1287	R	162		RS1/16S105J
L	208	Inductor	LAU121K				
				R	163		RS1/16S223J
L	231	Inductor	LCTA3R3J3225	R	202		RS1/16S223J
T	31	Coil	CTE1116	R	203		RS1/16S225J
T	51	Coil	CTC1136	R	204		RS1/16S103J
CF	51	Ceramic Filter	CTF1290	R	206		RS1/16S220J
CF	52	Ceramic Filter	CTF1290				
				R	207		RS1/16S101J
CF	53	Ceramic Filter	CTF1290	R	208		RS1/16S102J
CF	232	Ceramic Filter	CTF1348	R	209		RS1/16S471J
X	151	Resonator 920.5kHz	CSS1365	R	214		RS1/16S822J
X	231	Crystal Resonator 10.26MHz	CSS1111	R	215		RS1/16S822J
VR	154	Semi-fixed 150kΩ(B)	CCP1213				
				R	217		RS1/16S102J
RESISTORS				R	231		RS1/16S272J
R	1		RS1/16S225J	R	232		RS1/16S473J
R	2		RS1/16S225J	R	237		RS1/16S103J
R	4		RS1/16S154J	R	238		RS1/16S104J
R	5		RS1/16S391J				
R	6		RS1/16S223J				

====Circuit Symbol & No.===Part Name	Part No.
R 239	RS1/16S104J
R 240	RS1/16S332J
R 241	RS1/16S202J
R 243	RS1/16S183J
R 244	RS1/16S392J
R 247	RS1/16S123J
CAPACITORS	
C 1	CCSQCH6R0D50
C 2	CCSRCK2R0C50
C 4	CCSRCH820J50
C 6	CCSRCH820J50
C 8	CKSRYB103K25
C 9	CKSQYB104K16
C 10	CCSRCKR50C50
C 11	CEJA1R0M50
C 12	CKSRYB222K50
C 13	CKSRYB222K50
C 14	CCSRCH220J50
C 15	CCSRCH6R0D50
C 16	CCSRCH8R0D50
C 17	CKSRYB222K50
C 18	CKSRYB103K25
C 19	CKSRYB222K50
C 20	CKSRYB222K50
C 21	CEJA100M16
C 22	CCSRTH9R0D50
C 23	CCSRTH120J50
C 24	CCSRCH471J50
C 25	CKSRYB103K25
C 26	CCSRCH101J50
C 31	(Except for DEH-436/X1M/ES,236/X1M/ES) CKSRYB103K25
C 32	CKSQYB472K50
C 33	CCSRCH5R0C50
C 34	CKSQYB104K16
C 36	CCSRRH201J50
C 51	CKSRYB223K25
C 52	CKSRYB103K25
C 54	CCSRCH470J50
C 55	CKSQYB223K25
C 56	CKSQYB104K16
C 57	CKSRYB472K50
C 58	CEJA330M10
C 59	CKSRYB103K25
C 60	CKSRYB102K50
C 61	CCSRCH270J50
C 62	CKSRYB103K25
C 63	CEJAR22M50
C 101	CEJANP100M10
C 102	CKSRYB182K50
C 103	CKSRYB682K25
C 104	CEJA2R2M50
C 105	CKSRYB103K25
C 106	CCSRCH151J50
C 107	CKSRYB103K25
C 151	CKSRYB472K50
C 152	CKSQYB104K16
C 153	CEJA3R3M50
C 154	CKSQYB104K16
C 157	CEJA3R3M50
C 158	CKSYB474K16
C 159	CEJA220M6R3

====Circuit Symbol & No.===Part Name	Part No.
C 160	CKSQYB104K16
C 161	CKSQYB104K16
C 162	CEJA3R3M50
C 163	CKSRYB102K50
C 170	CCSRCH100D50
C 201	CCSRCH471J50
C 202	CCSRCH100D50
C 203	CKSRYB332K50
C 204	CKSQYB473K16
C 205	CKSQYB473K16
C 206	CKSQYB104K16
C 207	CCSRCH560J50
C 209	CKSQYB104K16
C 211	CCSRCH101J50
C 212	CEJA470M6R3
C 213	CKSRYB103K25
C 216	CCSRCH101J50
C 217	CEJA1R5M50
C 219	CCSRCH471J50
C 220	CKSRYB103K25
C 230	CKSRYB103K25
C 231	CCSRCH330J50
C 232	CCSRCH150J50
C 233	CKSQYB104K16
C 234	CEJA330M10
C 235	CKSRYB332K50
C 236	CKSQYB473K16
C 237	CCSRCH120J50
C 239	CKSRYB472K50
C 240	CEJAR47M50
C 241	CKSQYB104K16
C 242	CEJAR47M50
C 243	CEJAR33M50
C 244	CKSQYB473K16
C 245	CKSRYB333K16
C 246	CKSQYB473K16
C 250	CCSRCH471J50

E Unit Number : CWX1889
Unit Name : Control Unit

MISCELLANEOUS

IC 101	IC	UPC2572GS
IC 201	IC	UPD63702GF
IC 301	IC	XLA6997FP
IC 302	IC	XLA6285FP
IC 601	IC	TA2063F
IC 701	IC	PQ05TZ51
Q 101	Transistor	2SD1664
Q 102	Transistor	UMD2N
Q 601	Transistor	2SD1781K
Q 602	Transistor	2SD1781K
Q 603	Transistor	2SB709A
D 601	Diode	MA151WA
D 701	Diode	1SR154-400
D 702	Diode	1SR154-400
D 801		CL200IRX
D 802		CL200IRX
X 201	Ceramic Resonator 16.93MHz	CSS1363
S 801	Switch(Home)	CSN1028
S 802	Switch(Clamp)	CSN1028

====Circuit Symbol & No.===Part Name	Part No.	====Circuit Symbol & No.===Part Name	Part No.
RESISTORS			
R 101	RS1/8S100J	C 303	CEV470M16
R 102	RS1/8S120J	C 304	CKSRYB103K25
R 103	RS1/16S102J	C 305	CKSRYB103K25
R 104	RS1/16S822J	C 306	CKSRYB103K25
R 105	RS1/16S682J	C 502	CKSRYB471K50
R 106	RS1/16S183J	C 601	CEV101M6R3
R 107	RS1/16S822J	C 602	CKSQYB104K16
R 108	RS1/16S333J	C 603	CEV4R7M35
R 109	RS1/16S683J	C 604	CEV4R7M35
R 110	RS1/16S134J	C 605	CKSRYB152K50
R 111	RS1/16S273J	C 606	CKSRYB152K50
R 112	RS1/16S222J	C 607	CEV220M6R3
R 113	RS1/16S103J	C 701	CCH1233
R 114	RS1/16S103J	C 702	CKSYB334K16
R 115	RS1/16S102J	C 703	CEV101M6R3
R 116	RS1/16S163J	C 901	CCSRCH471J50
R 117	RS1/16S163J	C 902	CCSRCH271J50
R 201	RS1/16S104J	C 903	CCSRCH471J50
R 202	RS1/16S473J	C 904	CCSRCH101J50
R 304	RS1/16S0R0J	<div><div>A</div><div>Unit Number : CWM4964(DEH-48/X1M/UC) Unit Number : CWM4965(DEH-435/X1M/UC) Unit Number : CWM4966(DEH-43/X1M/UC) Unit Number : CWM4967(DEH-436/X1M/ES) Unit Number : CWM4968(DEH-235/X1M/UC) Unit Number : CWM4969(DEH-236/X1M/ES) Unit Name : Tuner Amp Unit</div></div>	
R 501	RS1/16S0R0J		
R 505	RS1/16S102J		
R 507	RA4C102J		
R 508	RA4C681J		
R 510	RS1/10S0R0J	MISCELLANEOUS	
R 601	RS1/16S102J	IC 451	IC SN761027DL
R 602	RS1/16S102J	IC 501	IC PM2004B
R 603	RS1/16S223J	IC 551	IC TDA7384A
R 604	RS1/16S223J	IC 601	IC PDR027B
R 605	RS1/16S162J	IC 602	IC S-80734AN
R 606	RS1/16S162J	Q 421	See Contrast table(2)
R 607	RS1/16S103J	Q 423	See Contrast table(2)
R 801	RS1/8S751J	Q 431	Transistor IMH3A
R 802	RS1/8S751J	Q 432	See Contrast table(2)
CAPACITORS		Q 441	Transistor DTA124ES
C 101	CEV101M6R3	Q 501	Transistor 2SC2458
C 102	CKSQYB104K16	Q 502	Transistor DTC114ES
C 103	CEV470M6R3	Q 551	Transistor DTC144ES
C 104	CKSYB334K16	Q 641	See Contrast table(2)
C 105	CCSRCH330J50	Q 651	Transistor 2SA1048
C 106	CKSRYB103K25	Q 653	Transistor 2SB1236
C 107	CEV4R7M35	Q 654	Transistor DTC124ES
C 108	CKSQYB273K50	Q 951	Transistor 2SB1243
C 109	CCSRCH101J50	Q 952	Transistor DTC124ES
C 110	CKSQYB104K16	Q 961	Transistor 2SB1243
C 111	CKSRYB332K50	Q 962	Transistor DTC114ES
C 112	CKSQYB473K16	Q 971	Transistor 2SC2458
C 113	CKSRYB103K25	Q 972	Transistor 2SC2458
C 114	CKSRYB391K50	Q 973	Transistor 2SD1859
C 115	CCSRCH121J50	Q 981	Transistor 2SD2396
C 116	CKSRYB682K25	Q 982	Transistor 2SA1674
C 117	CKSRYB333K16	Q 983	Transistor 2SA1674
C 118	CKSYB334K16	Q 984	Transistor IMH1A
C 119	CKSYB334K16	Q 991	Transistor 2SD2396
C 120	CKSYB334K16	Q 992	Transistor IMD2A
C 121	CKSYB334K16	D 503	Diode 1SS133
C 122	CKSQYB104K16	D 504	Diode 1SS133
C 123	CKSRYB472K50	D 601	See Contrast table(2)
C 124	CKSQYB104K16	D 657	Diode HZS6L(B2)
C 125	CCSRCH6R0D50	D 658	See Contrast table(2)
C 126	CKSRYB153K25	D 659	See Contrast table(2)
C 127	CCSRCH102J25	D 660	See Contrast table(2)
C 201	CKSYB334K16	D 951	Diode 1SR139-200
C 202	CKSQYB104K16	D 952	Diode 1SR139-200
C 203	CKSQYB104K16	D 961	Diode 1SR139-200

====Circuit Symbol & No.===Part Name			Part No.	====Circuit Symbol & No.===Part Name			Part No.
D	962	Diode	1SR139-200	R	532		RS1/10S224J
D	971	Diode	HZS6L(C3)	R	533		RS1/8S0R0J
D	972	Diode	HZS7L(C2)	R	534		RD1/4PU102J
D	973	Diode	1SR139-200	R	535	See Contrast table(2)	
D	974	Diode	HZS6L(B1)	R	536		RS1/8S102J
D	981	Diode	HZS9L(B3)	R	537		RS1/10S0R0J
D	992	Diode	HZS9L(B1)	R	550		RS1/8S0R0J
L	501	Ferri-Inductor	LAU220K	R	570		RS1/10S103J
L	502	Ferri-Inductor	LAU2R2K	R	571		RS1/10S103J
L	503	Ferri-Inductor	LAU2R2K	R	579		RS1/10S331J
L	601	Ferri-Inductor	LAU2R2K	R	580		RS1/10S103J
L	602	Ferri-Inductor	LAU101K	R	581		RD1/4PU102J
L	651	Ferri-Inductor	LAU101K	R	582		RD1/4PU102J
TH	601	Thermistor	CCX1031	R	583		RS1/10S562J
X	501	Crystal Resonator 7.200MHz	CSS1379	R	584		RD1/4PU102J
X	601	Ceramic Resonator 4.194MHz	CSS1047	R	601		RN1/10SE2202D
BZ	601	See Contrast table(2)		R	602	See Contrast table(2)	
		FM/AM Tuner Unit	See Contrast table(2)	R	603		
RESISTORS				R	604		RS1/10S393J
				R	605		RD1/4PU102J
R	421	See Contrast table(2)		R	606		RS1/10S124J
R	422		RS1/10S104J	R	607		RS1/10S473J
R	431		RS1/8S471J	R	621		RD1/4PU473J
R	432		RS1/8S471J	R	624		RS1/10S0R0J
R	433		RS1/10S102J	R	626	See Contrast table(2)	
R	434		RS1/10S102J	R	627		
R	435		RS1/10S223J	R	628	See Contrast table(2)	RS1/10S473J
R	436		RS1/10S223J	R	638		RD1/4PU473J
R	437		RS1/10S223J	R	639		RD1/4PU473J
R	438		RS1/10S223J	R	641	See Contrast table(2)	
R	441		RS1/10S0R0J	R	642		
R	442		RS1/10S0R0J	R	651	See Contrast table(2)	RD1/4PU472J
R	443		RD1/4PU222J	R	652		RD1/4PU472J
R	444		RD1/4PU222J	R	653		RS1/10S222J
R	445		RS1/10S162J	R	654		RS1/10S222J
R	446		RS1/10S162J	R	655		RD1/4PU222J
R	459		RS1/10S272J	R	656		RD1/4PU472J
R	460		RS1/10S272J	R	657		RD1/4PU222J
R	461		RS1/10S151J	R	658		RS1/8S222J
R	462		RS1/10S151J	R	659		RD1/4PU473J
R	475		RD1/4PU471J	R	661		RS1/10S1R0J
R	476		RD1/4PU471J	R	664		RS1/10S472J
R	501		RS1/8S102J	R	665		RD1/4PU102J
R	502		RS1/10S222J	R	668		RD1/4PU222J
R	503		RD1/4PU472J	R	681		RD1/4PU222J
R	504	See Contrast table(2)	RD1/4PU223J	R	682		RD1/4PU222J
R	506			R	683		RD1/4PU222J
R	507		RS1/8S473J	R	688		RD1/4PU681J
R	508		RS1/10S102J	R	691		RS1/10S102J
R	509		RS1/10S472J	R	692		RS1/8S102J
R	511		RS1/10S222J	R	693		RS1/10S102J
R	513		RS1/10S472J	R	951		RS1/10S472J
R	514		RS1/10S473J	R	952		RD1/4PU331J
R	515		RD1/4PU681J	R	953		RD1/4PU331J
R	516		RD1/4PU681J	R	961		RS1/10S472J
R	517		RD1/4PU101J	R	962		RD1/2PM561J
R	518		RD1/4PU681J	R	971		RS1/10S473J
R	519		RS1/10S392J	R	972		RS1/10S103J
R	520		RS1/10S392J	R	973		RS1/10S473J
R	521		RS1/10S152J	R	974		RS1/10S473J
R	522		RS1/10S682J	R	975		RS1/10S103J
R	523		RS1/10S103J	R	976		RS1/10S473J
R	524		RS1/10S561J	R	977		RS1/10S101J
R	525		RD1/4PU272J	R	978		RS1/10S472J
R	526		RS1/10S472J	R	979		RS1/10S472J
R	527		RS1/10S682J	R	981		RS1/10S1R0J
R	528		RS1/10S472J	R	982		RD1/4PU471J
R	529		RS1/10S681J	R	983		RS1/10S472J
R	530		RS1/10S222J	R	984		RS1/8S472J
R	531		RS1/10S103J	R	985		RD1/4PU102J

DEH-48,435,43,436,235,236

====Circuit Symbol & No.===Part Name	Part No.
R 986	RD1/4PU102J
R 987	RS1/10S221J
R 991	RD1/4PU221J
R 992	RD1/4PU221J
R 993	RS1/10S472J
R 994	RS1/10S122J
CAPACITORS	
C 421	CEJA3R3M50
C 422	CEJA3R3M50
C 431	CEJA100M16
C 432	CEJA100M16
C 433	CEJA100M16
C 434	CEJA100M16
C 435	CCSQCH220J50
C 436	CCSQCH220J50
C 437	CCSQCH220J50
C 438	CCSQCH220J50
C 443	CKSQYB473K50
C 444	CKSQYB473K50
C 445	CKSQYB102K50
C 446	CKSQYB102K50
C 447	CKSQYB102K50
C 451	CEJA2R2M50
C 452	CEJA2R2M50
C 453	CEJA4R7M35
C 454	CEJA4R7M35
C 455	CKSYB104K50
C 456	CKSQYB104K50
C 457	CEJANP100M16
C 458	CEJANP100M16
C 459	CKSQYB822K50
C 460	CKSQYB822K50
C 461	CEJA1R0M50
C 462	CEJA1R0M50
C 469	CEJA2R2M50
C 470	CEJA2R2M50
C 471	CKSQYB333K50
C 472	CKSQYB333K50
C 473	CEJA220M6R3
C 474	CEJA2R2M50
C 477	CKSQYB104K50
C 481	CEJA470M10
C 482	CKSQYB104K50
C 483	CKSQYB183K50
C 484	CKSQYB183K50
C 485	CKSQYB102K50
C 486	CKSQYB102K50
C 501	CKSQYB103K50
C 502	CKSQYB223K50
C 503	CKSQYB223K50
C 504	CKSQYB473K50
C 505	CCSCH101J50
C 506	CKSYB103K50
C 507	CKSQYB102K50
C 508	CKSQYB103K50
C 509	CKSQYB223K50
C 510	CEJA220M10
C 512	CEJA220M10
C 513	CKSQYB102K50
C 515	CKSQYB223K50
C 516 4.7μF/16V	CCH1250
C 517	CKSQYB103K50
C 518 4.7μF/16V	CCH1250
C 519	CKSQYB103K50
C 520	CKLSR473K16
C 522	CEJA220M10
C 523	CKSQYB104K50

====Circuit Symbol & No.===Part Name	Part No.
C 524	CCSQCH150J50
C 525	CCSQCH150J50
C 526	CKSYB332K50
C 527	CKSQYB103K50
C 529	CKSQYB103K50
C 530	CKSQYB103K50
C 531	CCSQCH101J50
C 532	CKSQYB103K50
C 535	CKSQYB223K50
C 536	CKSQYB103K50
C 539	CKSQYB473K50
C 551	CEJAR22M50
C 552	CEJAR22M50
C 553	CEJAR22M50
C 554	CEJAR22M50
C 556 3300μF/16V	CCH1150
C 570	CEJA100M16
C 571	CEJA330M10
C 572	CEJA1R0M50
C 573	CKSYB104K50
C 574	CEJA1R0M50
C 590	CKSQYB103K50
C 591	CEJA220M10
C 604	CEJA4R7M35
C 605	CKSQYB473K50
C 606	CKSQYB473K50
C 607	CEJA2R2M50
C 651	CKSQYB473K50
C 652	CEJA4R7M35
C 961	CKSYB473K50
C 971 470μF/16V	CCH-114-
C 972	CKSQYB473K50
C 973	CEJA101M10
C 974	CKSQYB473K50
C 981	CEAS331M10
C 982	CKSQYB103K50
C 983	CEJA101M16
C 984	CKSYB473K50
C 991	CKSQYB473K50
C 992	CKSQYB102K50
C 993	CEAL101M10



Unit Number : CWM4973(Except for DEH-235/X1M/UC,
236/X1M/ES)
Unit Number : CWM5203(DEH-235/X1M/UC,236/X1M/ES)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 901	IC	PD6122A
D 901	Diode	DA204K
	(Except for DEH-235/X1M/UC,236/X1M/ES)	
D 902	Diode	DA204K
	(Except for DEH-235/X1M/UC,236/X1M/ES)	
L 901	Inductor	LCTB4R7K3216
X 901	Ceramic Resonator 4.97MHz	CSS1312
S 903	Switch	CSG-253
S 904	Switch	CSG-253
S 909	Switch	CSG-253
IL 901	Lamp 14V 40mA	CEL1481
IL 902	Lamp 14V 40mA	CEL1481
IL 903	Lamp 14V 40mA	CEL1481
IL 904	Lamp 14V 40mA	CEL1481
IL 905	Lamp 14V 40mA	CEL1481
LCD 901	LCD	CAW1330

====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
RESISTORS		<div><div>D</div><div>Unit Number : Unit Name : Detector PCB</div></div>	
R 901	RS1/8S222J	Q 1	Photo-transistor CPT-230S-X
R 902	RS1/8S222J	Q 2	Photo-transistor CPT-230S-X
R 908	RS1/10S0R0J	Miscellaneous Parts List	
R 909	RS1/10S0R0J		
R 911	RS1/10S471J		
R 912	RS1/10S471J	M 1	Pickup Unit(SERVICE) CXX1230
R 913	RS1/10S471J	M 2	Motor Unit(Spindle) CXA9407
R 914	RS1/10S471J	M 3	CRG Motor Unit(Carriage) CXA9392
			Load Motor Unit>Loading) CXA9391
CAPACITORS			
C 901	CKSQYB103K50		
C 902	CKSQYB103K50		
C 903	CKSQYB103K50		
C 904	CKSQYB103K50		
C 906	CKSQYB473K50		

(2) CONTRAST TABLE

DEH-48/X1M/UC, DEH-435/X1M/UC, DEH-43/X1M/UC, DEH-436/X1M/ES, DEH-235/X1M/UC and DEH-236/X1M/ES have the same construction except for the following:

Circuit Symbol & No.	Part No.					
	DEH-48/X1M/UC	DEH-435/X1M/UC	DEH-43/X1M/UC	DEH-436/X1M/ES	DEH-235/X1M/UC	DEH-236/X1M/ES
Q421	IMH3A	IMH3A	Not used	Not used	Not used	Not used
Q423	DTA124ES	DTA124ES	Not used	Not used	Not used	Not used
Q432	FMG3A	Not used	Not used	Not used	Not used	Not used
Q641	DTC114ES	Not used	Not used	Not used	Not used	Not used
D657	HZS6L(B2)	HZS6L(B2)	HZS6L(B2)	HZS6L(B2)	Not used	Not used
D658,659,660	MA153	MA153	MA153	MA153	Not used	Not used
FM/AM Tuner Unit	CWE1417	CWE1417	CWE1417	CWE1485	CWE1417	CWE1485
BZ601	CPV1011	Not used	Not used	Not used	Not used	Not used
R421,422	RS1/10S104J	RS1/10S104J	Not used	Not used	Not used	Not used
R506	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	Not used	RS1/10S0R0J	Not used
R535	Not used	Not used	Not used	RS1/10S182J	Not used	RS1/10S182J
R602	RD1/4PU104J	RD1/4PU473J	RD1/4PU333J	RD1/4PU333J	RD1/4PU473J	RD1/4PU333J
R603	RS1/10S333J	RS1/10S333J	RS1/10S473J	RS1/10S104J	RS1/10S333J	RS1/10S104J
R626	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	Not used	Not used
R627	Not used	Not used	Not used	Not used	RS1/10S473J	RS1/10S473J
R641	RS1/10S202J	Not used	Not used	Not used	Not used	Not used
R642	RD1/4PU102J	Not used	Not used	Not used	Not used	Not used
C421,422	CEJA3R3M50	CEJA3R3M50	Not used	Not used	Not used	Not used
C433,434	CEJA100M16	Not used	Not used	Not used	Not used	Not used
C437,438	CCSQCH220J50	Not used	Not used	Not used	Not used	Not used
C651	CKSQYB473K50	CKSQYB473K50	CKSQYB473K50	CKSQYB473K50	Not used	Not used

6. ADJUSTMENT

6.1 TUNER ADJUSTMENT

● Connection Diagram

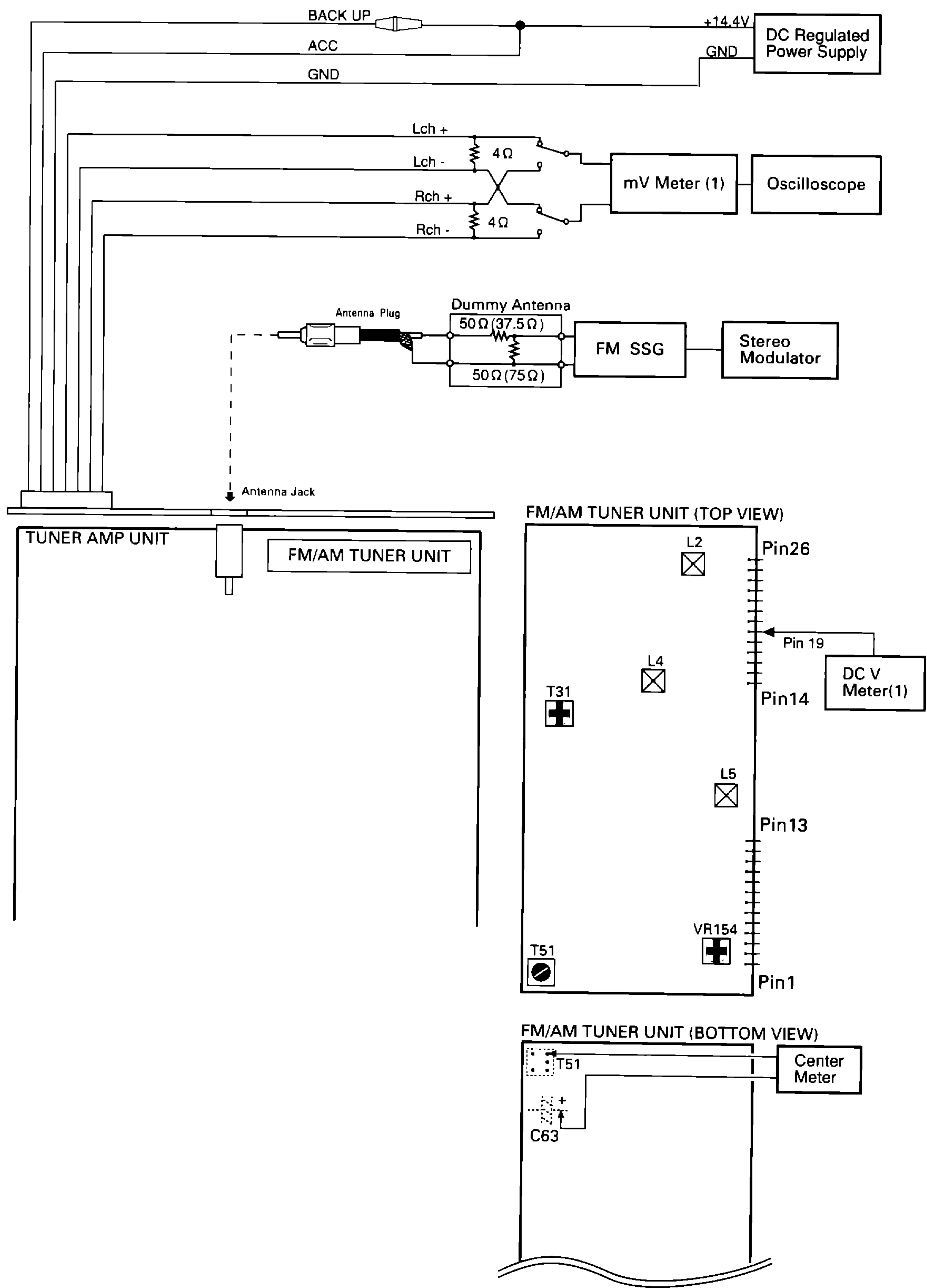


Fig. 29

FM ADJUSTMENT(DEH-48/X1M/UC, DEH-435/X1M/UC, DEH-43/X1M/UC, DEH-235/X1M/UC)

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.)
S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	107.9	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

FM ADJUSTMENT(DEH-436/X1M/ES, DEH-236/X1M/ES)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

6.2 CD ADJUSTMENT

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.

If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Test mode starting procedure
Switch ACC, back-up ON while pressing the **4** and **6** keys together.

- Test mode cancellation
Switch ACC, back-up OFF.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.

*The unit will not load a disc.

When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.
- Turn power off when pressing the button TR+ or the button TR- key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)
- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released. Tracking is closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is switched OFF.

6.3 CHECKING THE GRATING

● Checking the Grating After Changing the Pickup Unit

· **Note :**

Unlike previous CD mechanism modules the grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

· **Purpose :**

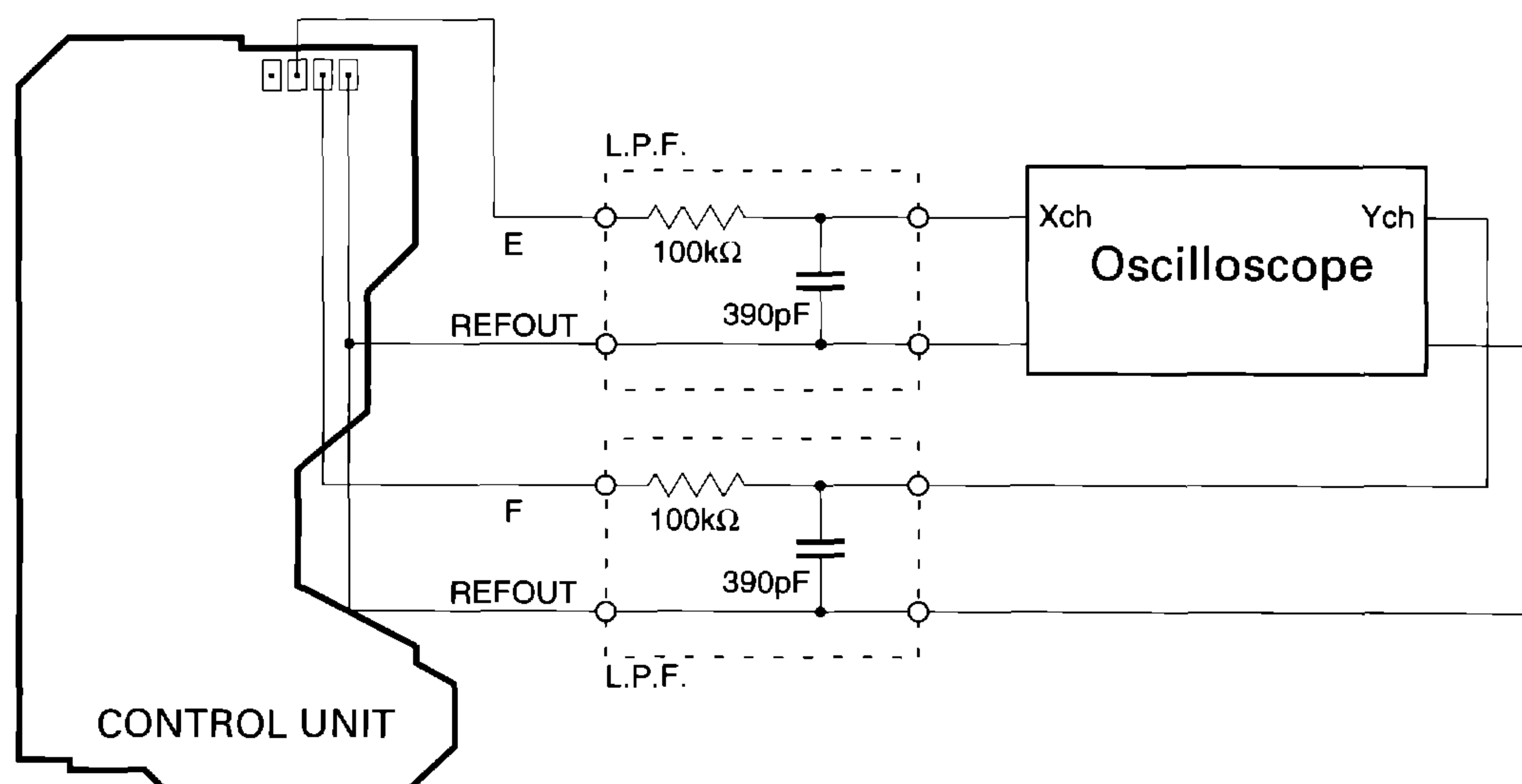
To check that the grating is within an acceptable range.

· **Symptoms of Mal-adjustment :**

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or track searching taking a long time, may appear.

· **Method :**

- | | |
|-----------------------|----------------------------|
| · Measuring Equipment | · Oscilloscope, Two L.P.F. |
| · Measuring Points | · E, F, REFOUT |
| · Disc | · ABEX TCD-784 |
| · Mode | · TEST MODE |



· **Checking Procedure**

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the **TR+** and **TR-** buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 4 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

· **Note**

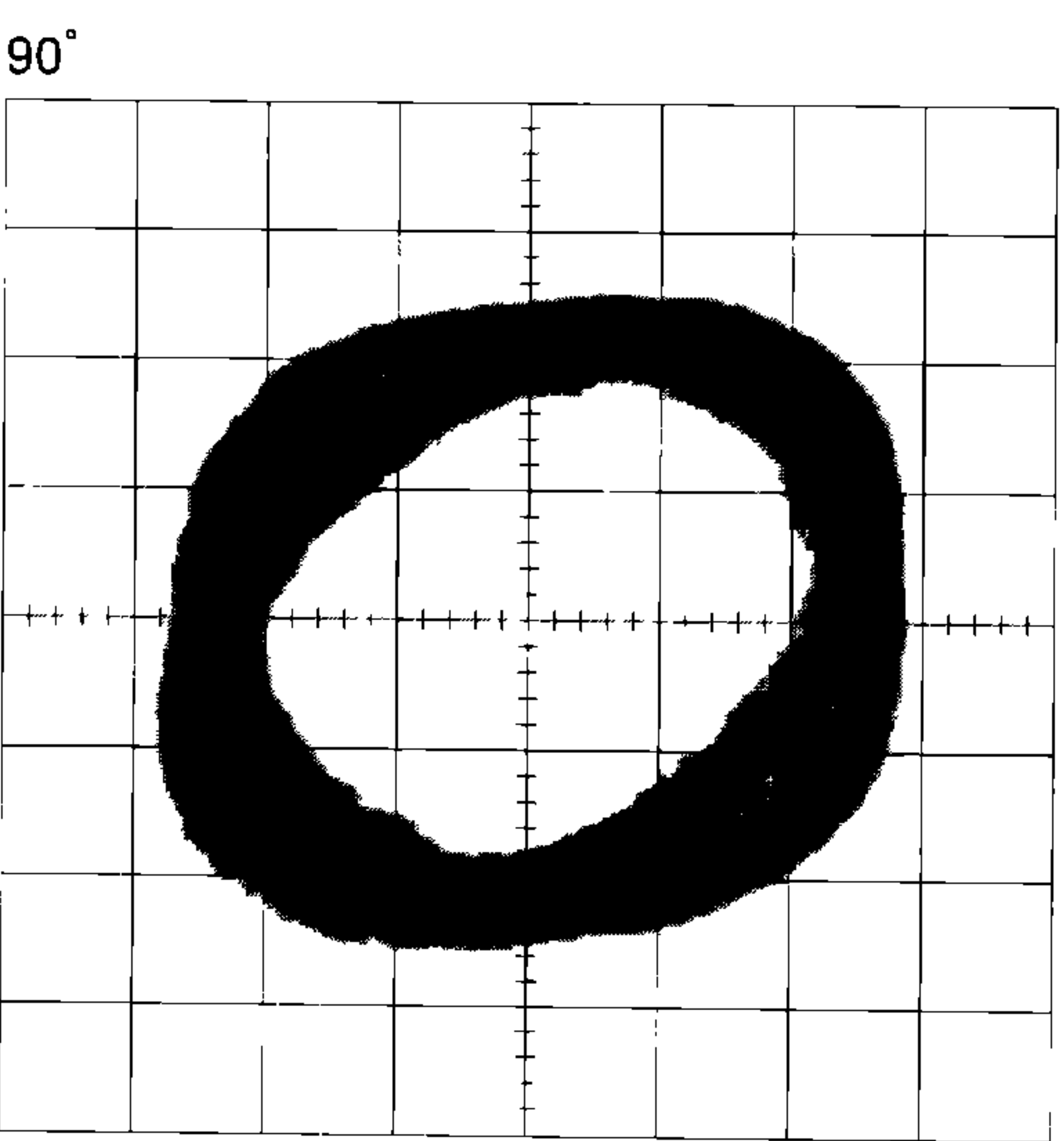
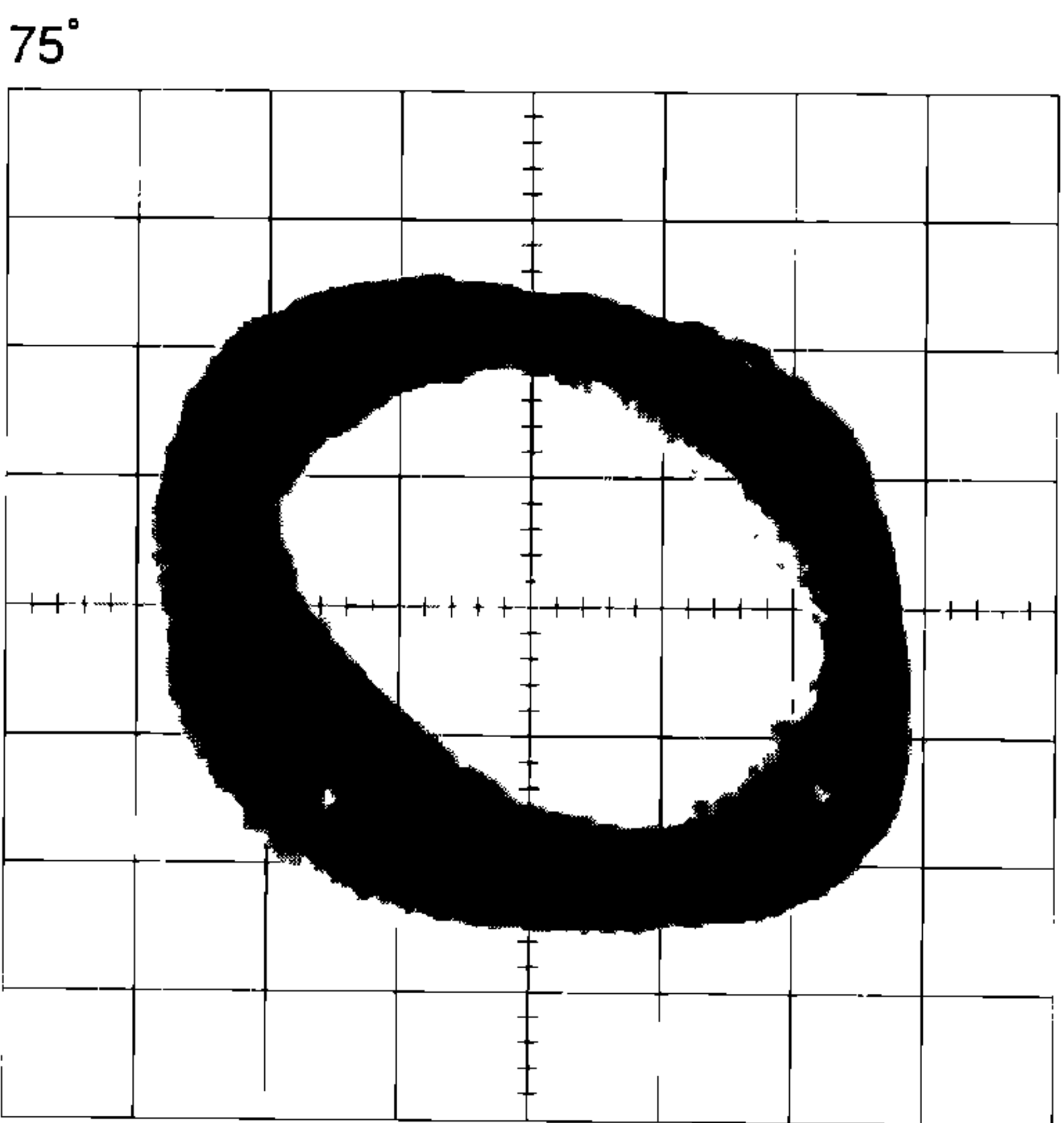
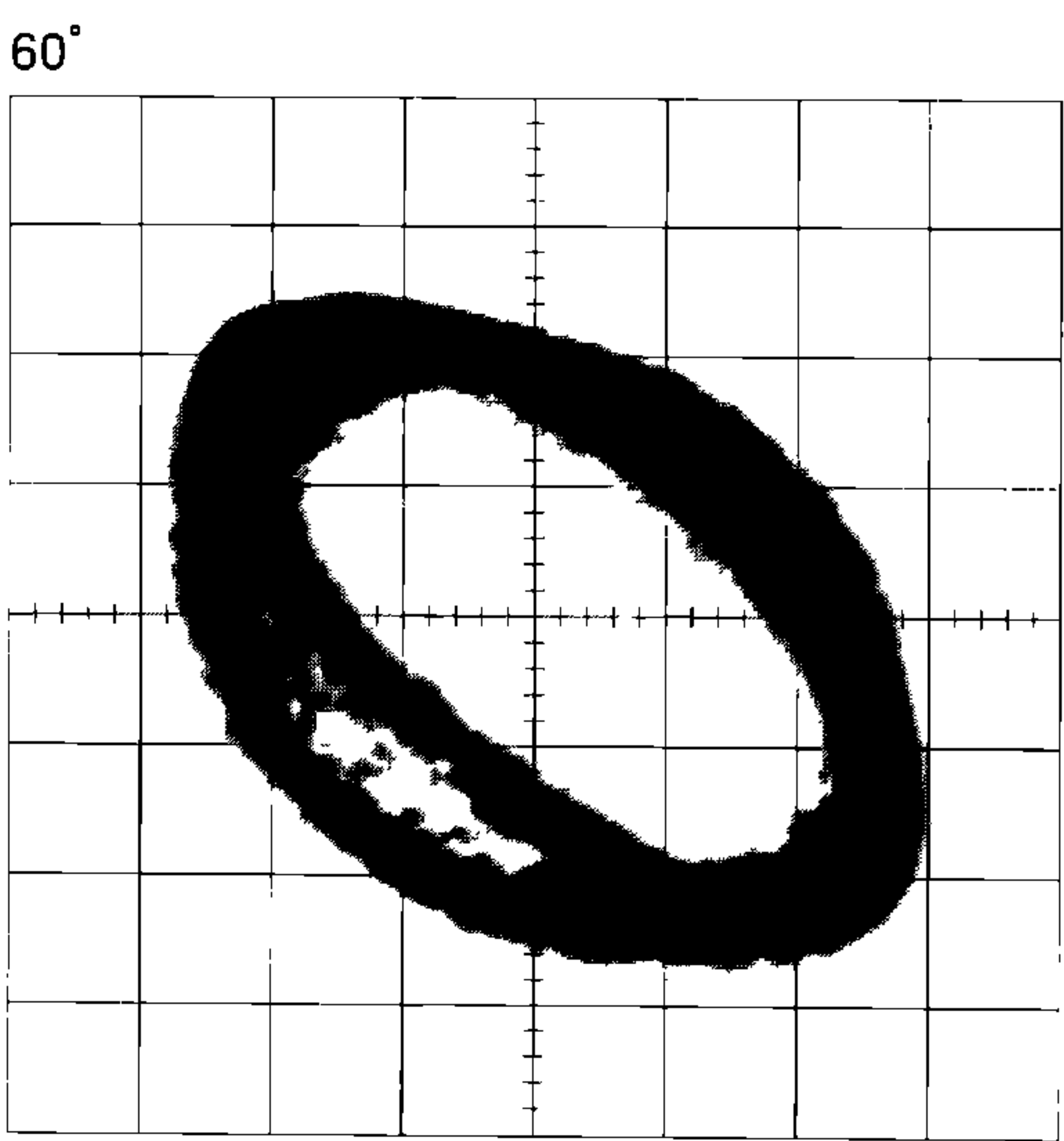
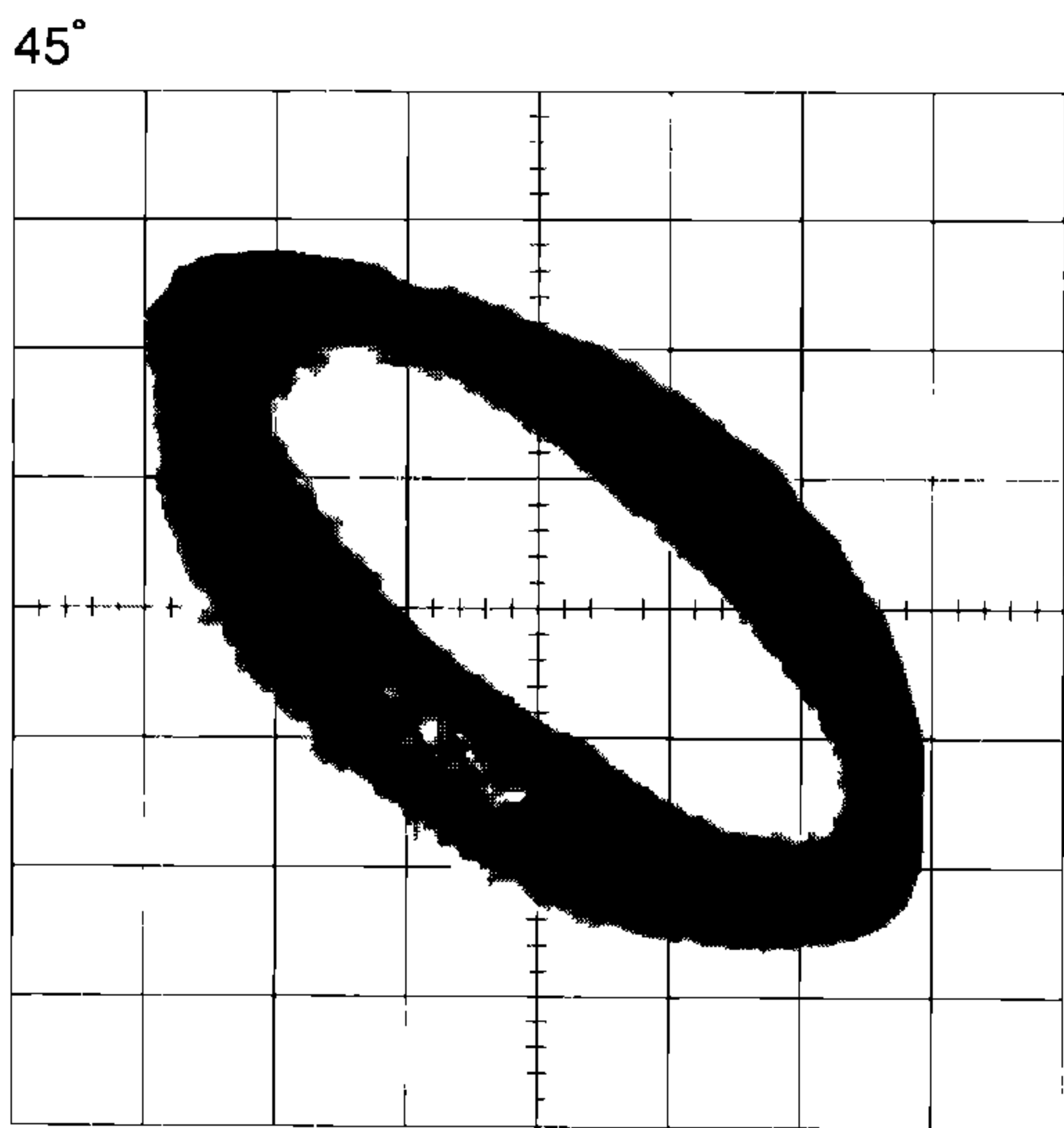
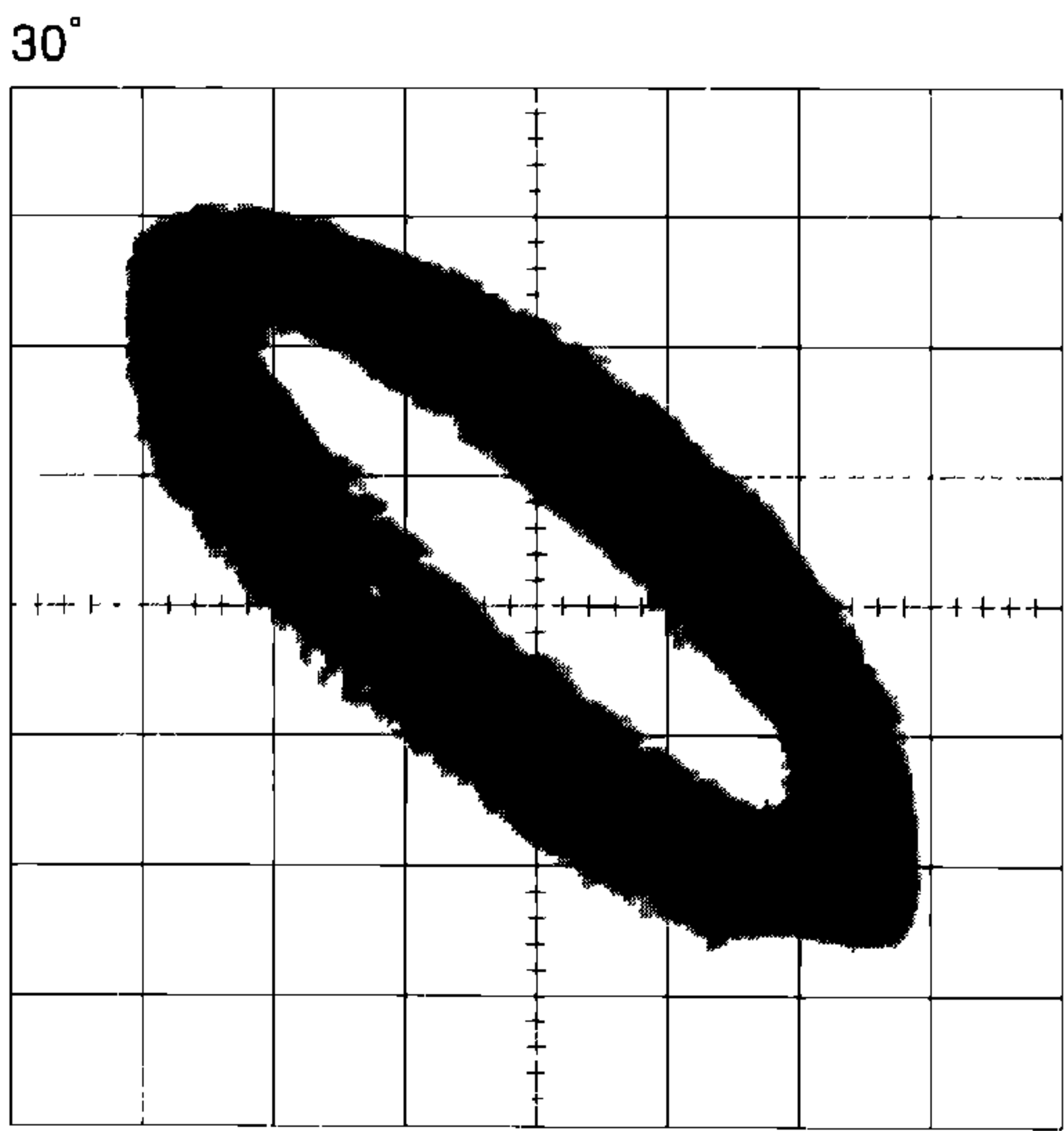
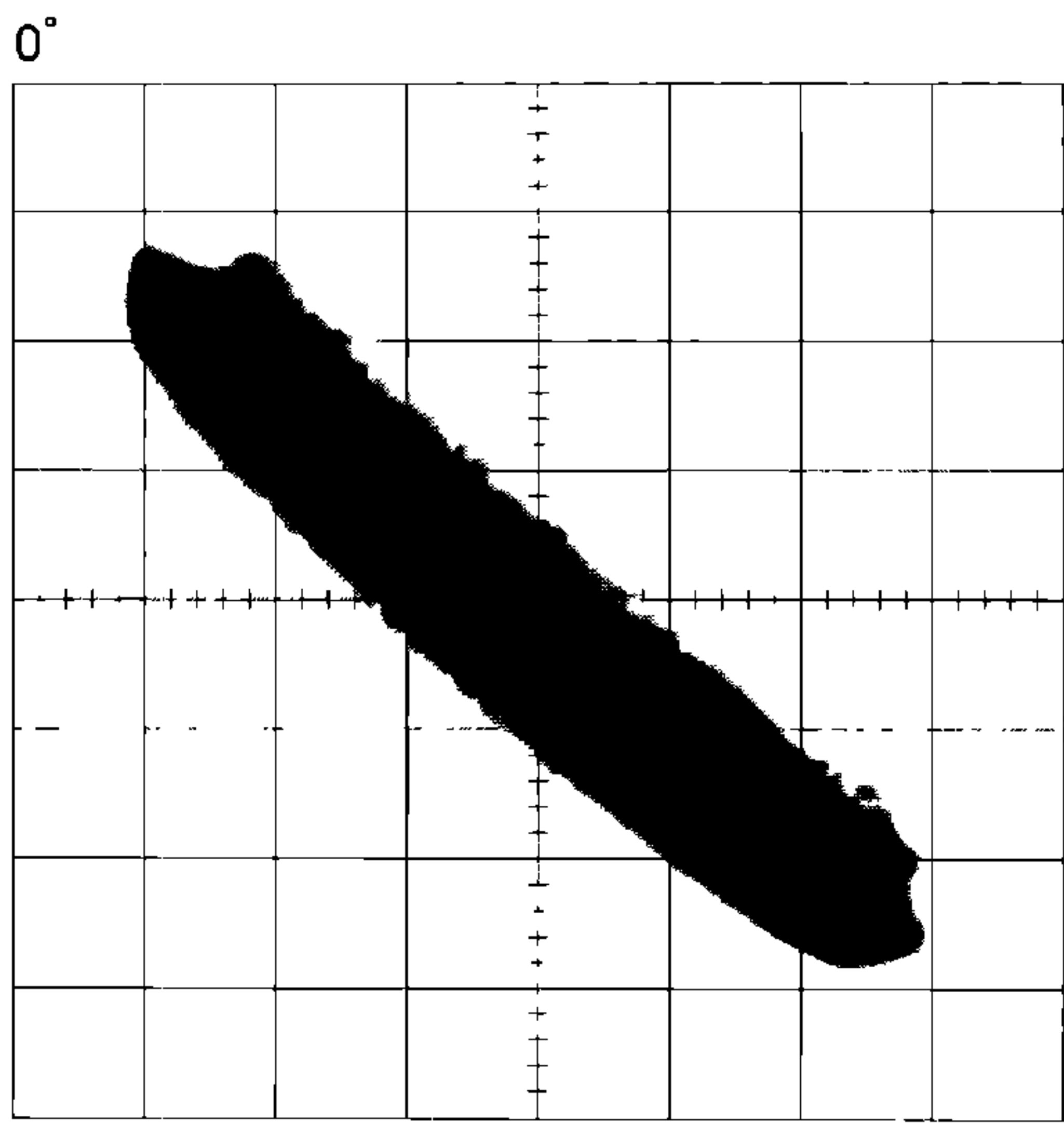
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

· **Hint**

Reloading the disc changes the clamp position and may decrease the "wobble".

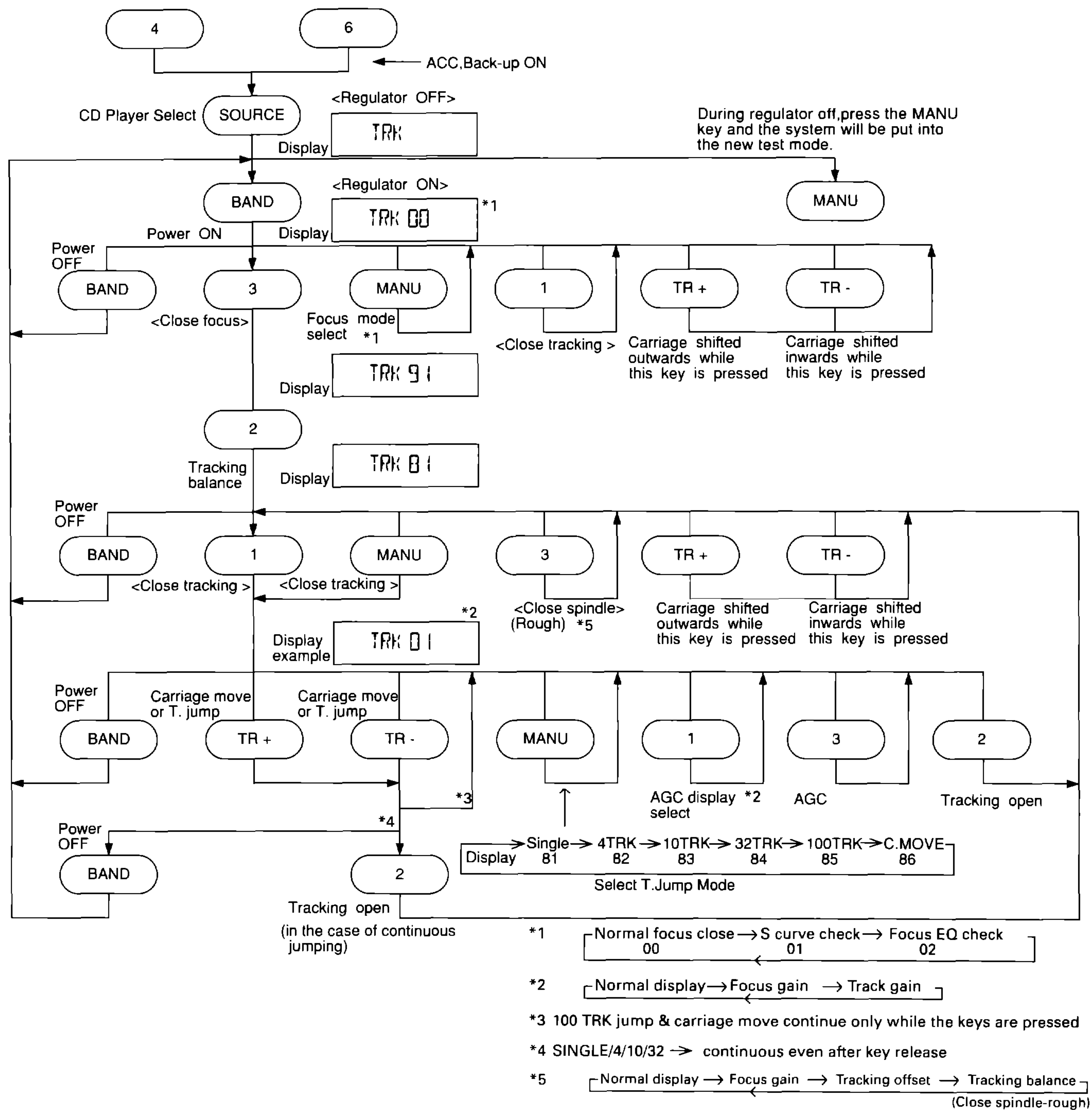
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC



6.4 TEST MODE

● Flow Chart

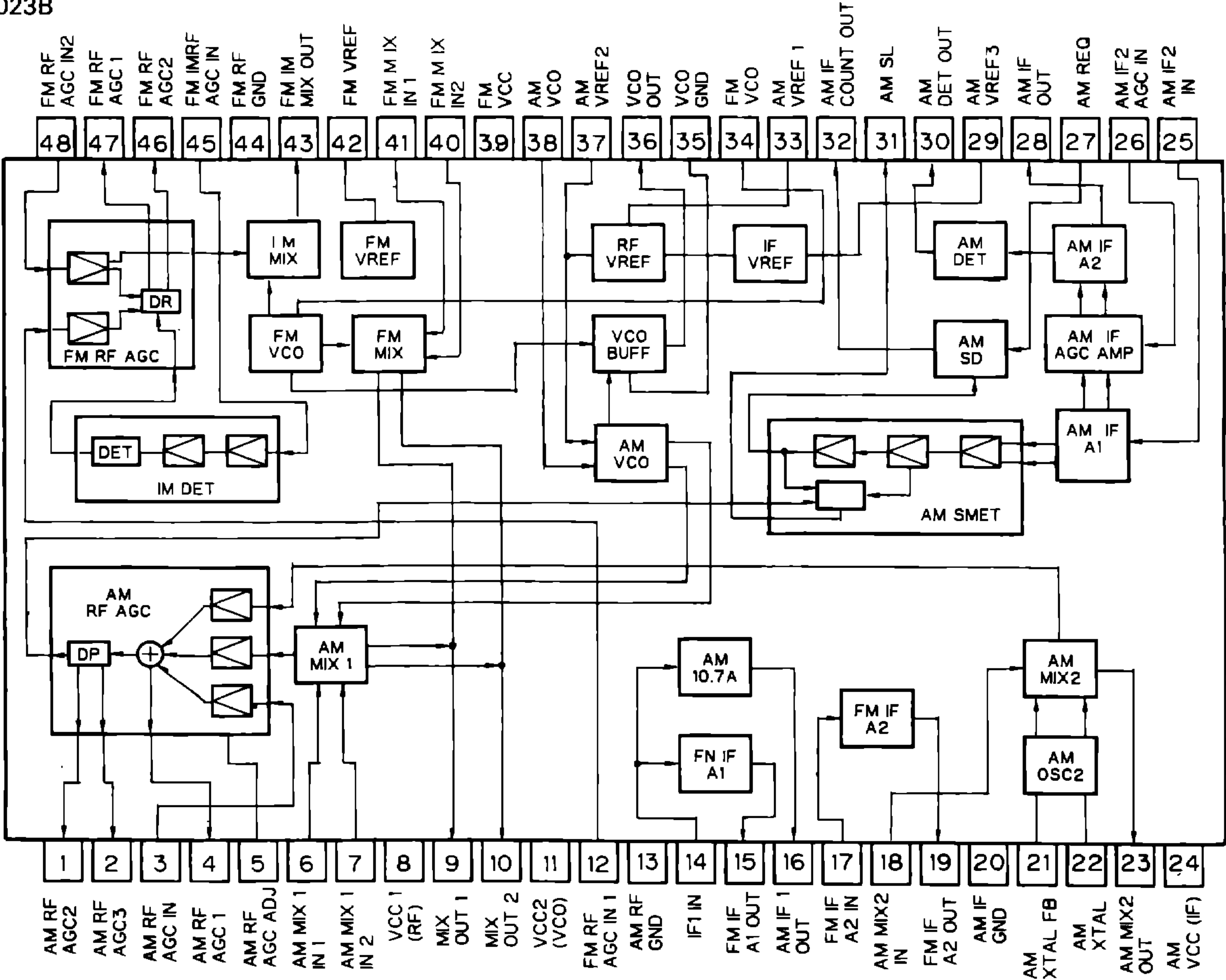


7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

PA4023B

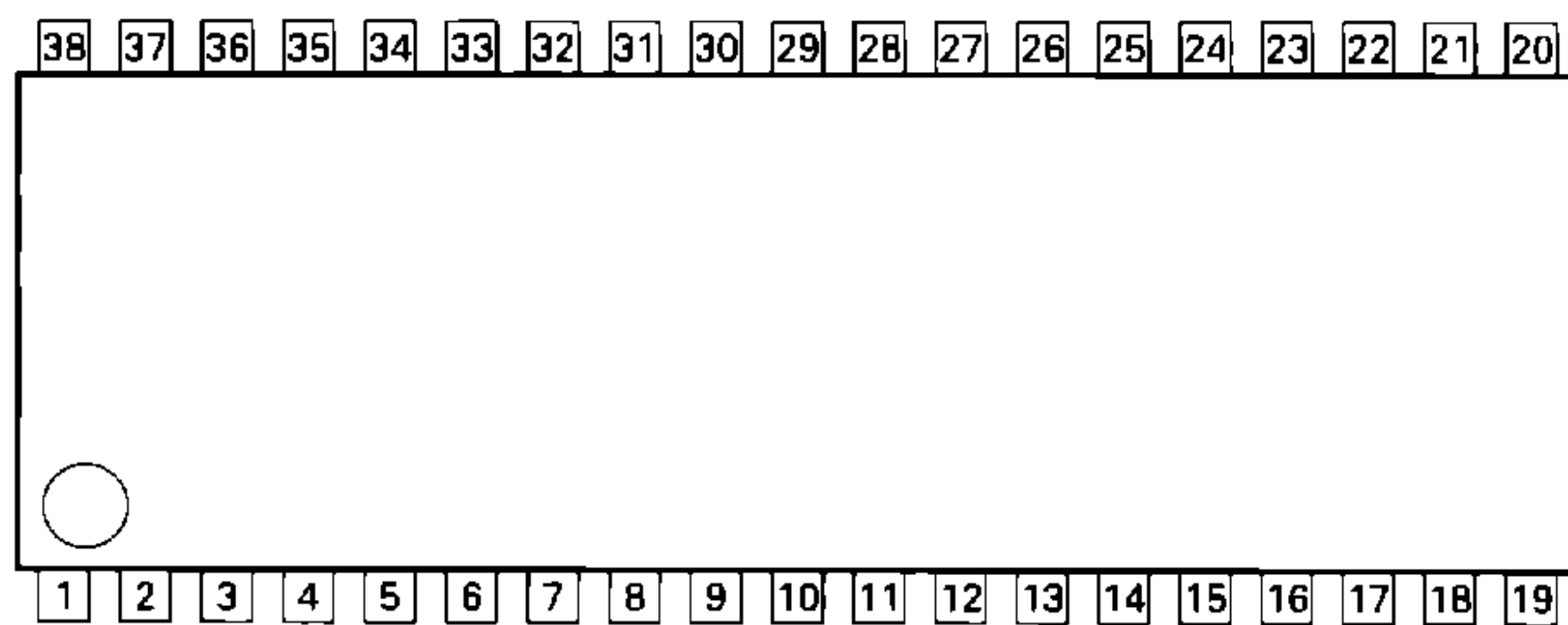


● Pin Functions (UPC2572GS)

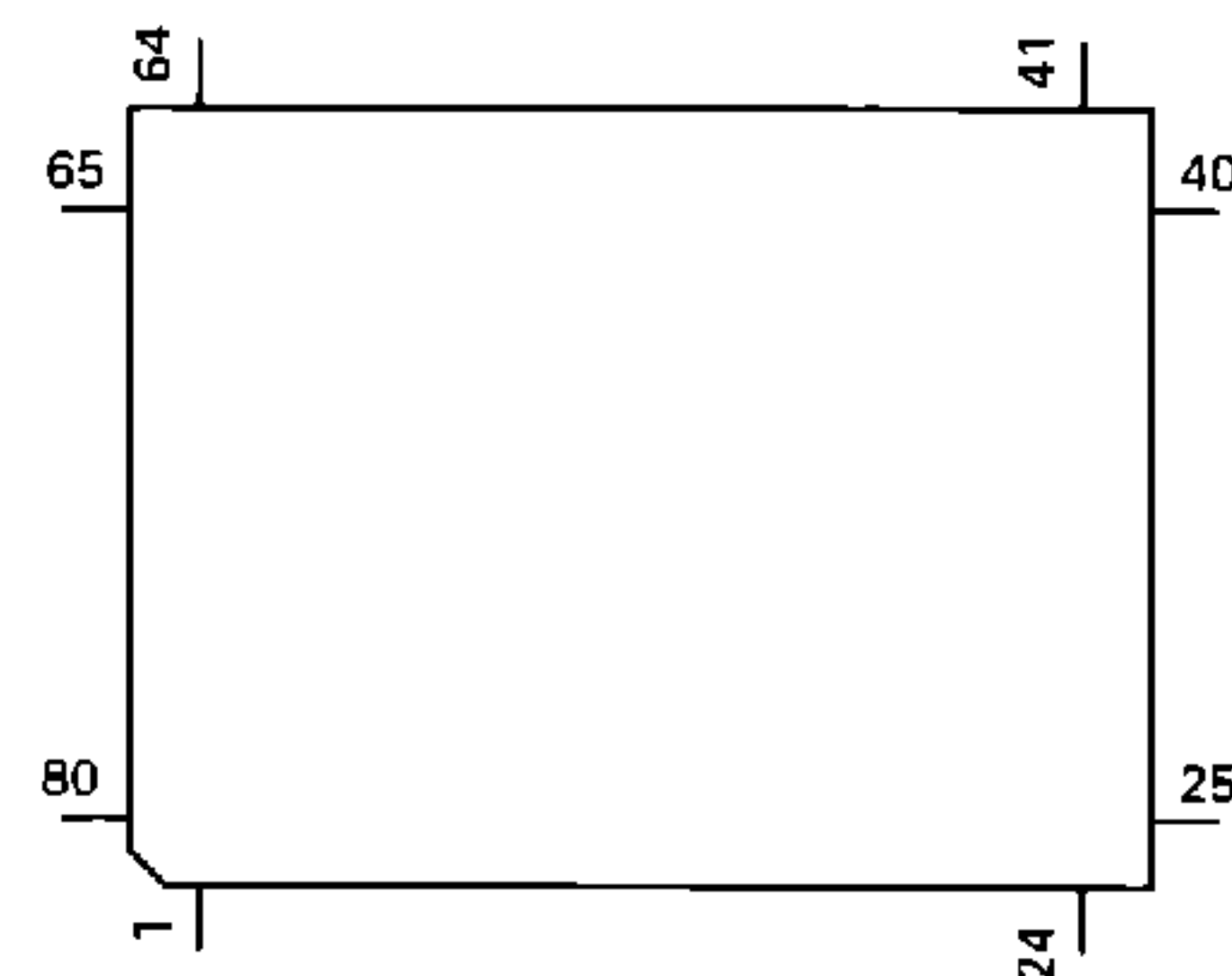
Pin No.	Pin Name	I/O	Function and Operation
1	EFM-IN	I	EFM comparator input
2	AGC-OUT	O	AGC amplifier output
3	C. AGC		Connects AGC peak detection condenser
4	RF-IN	I	RF signal DC component cut input
5	RF-OUT	O	RF amplifier output
6	RF-	I	RF amplifier inverted input
7	C1, 3T		Connects RF3T component detection condenser
8	C2, 3T		Connects RF3T component detection condenser
9	Vcc		Power supply
10	A	I	A signal input
11	C	I	C signal input
12	B	I	B signal input
13	D	I	D signal input
14	F	I	F signal input
15	E	I	E signal input
16	PD	I	APC amplifier input
17	LD	O	APC amplifier output
18	LDON	I	Laser diode ON/OFF input
19	VREF-OUT	O	Reference voltage output
20	VREF-IN	I	Reference voltage input
21	DET-OUT	O	Vibration detection circuit output

Pin No.	Pin Name	I/O	Function and Operation
22	DET-IN	I	Vibration detection circuit input
23	TE-OUT2	O	Tracking error amplifier output (fourfold gain)
24	TE-OUT1	O	Tracking error amplifier output (singlefold gain)
25	TE-	I	Tracking error amplifier inverted input
26	GND		GND
27	FE-	I	Focus error amplifier inverted input
28	FE-OUT	O	Focus error amplifier output
29	C.FE	I	Focus error signal DC component cut input
30	3T-OUT	O	RF3T component output
31	MIRR	O	MIRR signal output
32	RFOK	O	RFOK signal output
33	DEFECT	O	DEFECT signal output
34	C. DEF		Connects DEFECT signal detection condenser
35	EFM-OUT	O	EFM comparator output
36	ASY	I	EFM comparator level input
37	TE-BAL	I	Tracking balance control
38	FE-BAL	I	Focus balance control

UPC2572GS



*UPD63702GF



IC's marked by* are MOS type.

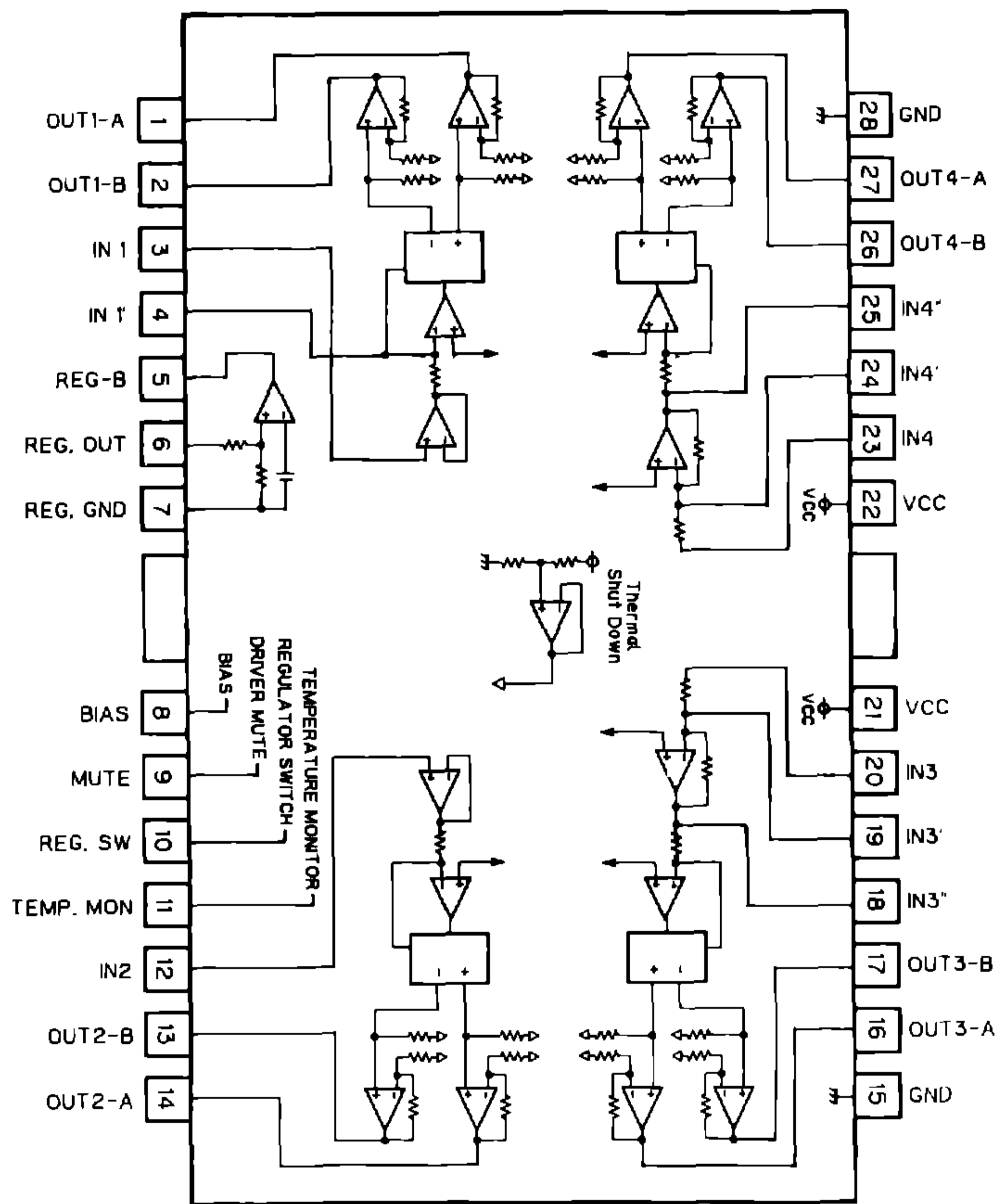
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● Pin Functions (UPD63702GF)

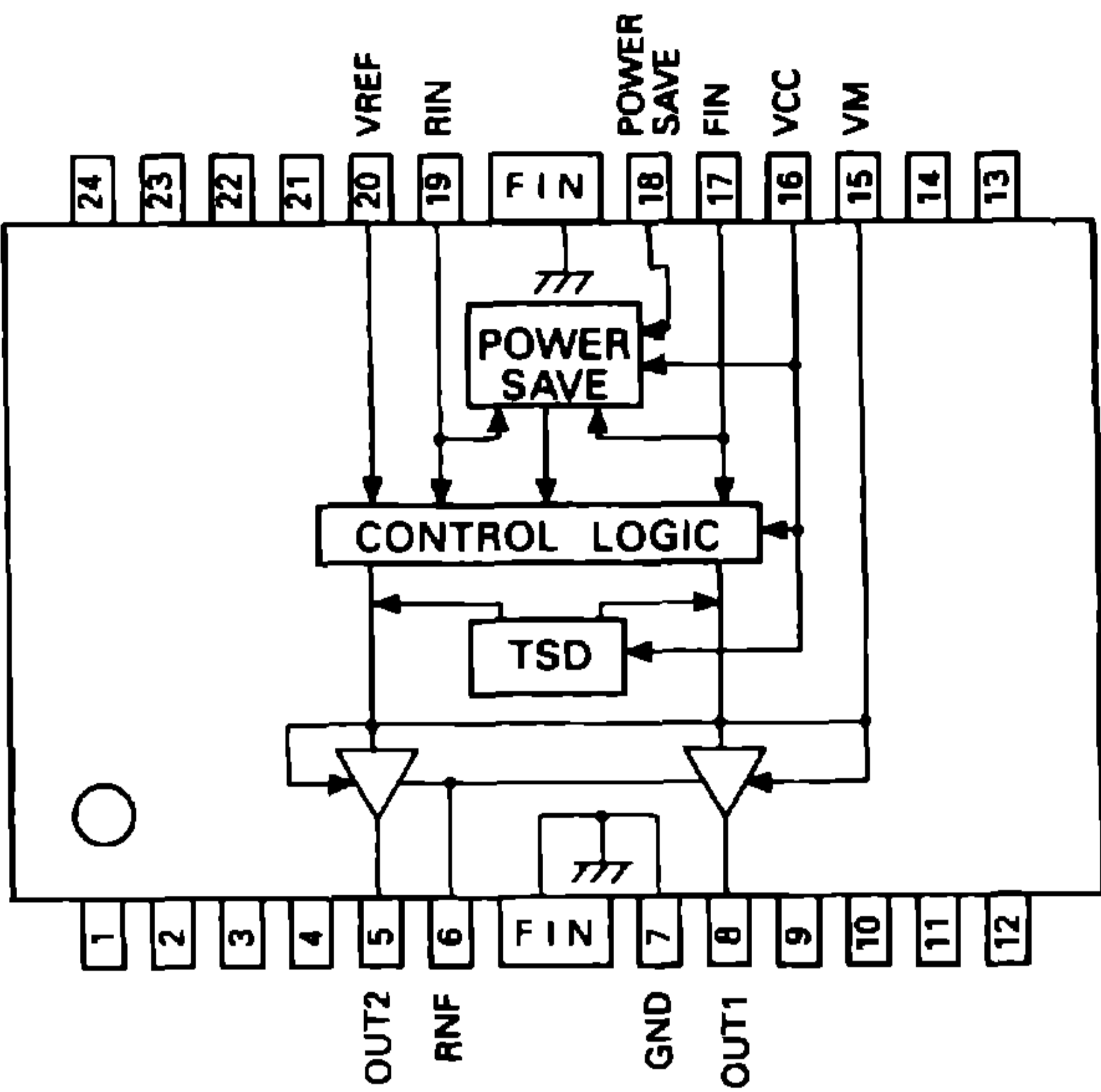
Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Supplies current of positive voltage to the logic circuits
2	RST	I	System reset input pin
3	AO	I	Microcomputer interface AO="L": STB active and set to address register AO="H": STB active and set to parameter
4	STB	I	Signal to latch serial data within the LSI
5	SCK	I	Clock input pin to input and output serial data
6	SO	O	Outputs serial data and status signal
7	SI	I	Serial data input pin
8	D.GND		Logic circuit GND
9	X.GND		Crystal oscillation circuit GND
10	XTAL	I	Crystal oscillator connection pin
11	XTAL	O	Crystal oscillator connection pin
12	X.VDD		Supplies current of positive voltage to the crystal oscillation circuit
13	DA.VDD		Supplies current of positive voltage to the D/A converter
14	R+	O	Right channel analog audio data output pin
15	R-	O	Right channel analog audio data output pin
16,17	DA.GND		D/A converter GND
18	L-	O	Left channel analog audio data output pin
19	L+	O	Left channel analog audio data output pin
20	DA.VDD		Supplies current of positive voltage to the D/A converter
21	D.VDD		Supplies current of positive voltage to logic circuit
22	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
23	WDCK	O	Pin to output double the frequency of LRCK
24	C16M	O	Pin to output the clock
25	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code

Pin No.	Pin Name	I/O	Function and Operation
26	DIN	I	Input pin for serial audio data
27	DOUT	O	Output pin for the serial audio data
28	SCKO	O	Output pin for the clock for the serial audio data
29	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT. Frequency is 44.1kHz at 50% duty at normal regeneration
30	TX	O	Output pin for the digital audio interface data
31	CTLV	I	Oscillation control pin for high-frequency clock generation VCO used for the digital PLL upon regeneration at fast speed of 2- or 4-fold
32	POUT	O	Output point for phase comparison
33	D.GND		GND for the logic circuit
34	VCO	I	Input pin for the inverter
35	$\overline{\text{VCO}}$	O	Output pin for the inverter
36	D.VDD		Supplies current of positive voltage to the logic circuit
37	PLCK	O	Pin for monitoring the bit clock
38	LOCK	O	Indicates "H" when the synchronized pattern detection signal matches the frame counter output at the EFM recovery modulation, and "L" when they don't match
39	WFCK	O	Minute-cycle signal for the bit clock, the signal indicates the cycle of 1 frame (approx. 7.35kHz)
40	RFCK	O	Minute-cycle signal for the clock, the signal indicates cycle of 1 frame (approx. 7.35kHz)
41	D.GND		GND for the logic circuit
42,43	TEST0,1	I	Test pins
44,45	TM2, TM4	I	Pins for controlling regeneration at fast speed of 2- or 4-fold
46-49	T4-T7	I	Test pins
50,51	C1D1, C1D2	O	Output pin for indicating the C1 error correction results
52-54	C2D1-C2D3	O	Output pin for indicating the C2 error correction results
55	D.VDD		Supplies current of positive voltage to the logic circuit
56	SFSY	O	Outputs 1 word of the subcode. Generally, 1 cycle is approx 136 micro seconds
57	SBSY	O	The signal indicates the beginning of the subcode block. The SFSY signal is output at high level every 98 times
58	SBSO	O	Output pin for the subcode data
59	SBCK	I	Input pin for the clock signal for read-out of the subcode data
60	A.GND		GND for the analog circuit
61	MD	O	Output pin for the spindle drive
62	SD	O	Output pin for the sled drive
63	TD	O	Output pin for the tracking drive
64	FD	O	Output pin for the focus drive
65	FBAL	O	Output pin for the focus balance control
66	TBAL	O	Output pin for the tracking balance control
67	A.VDD		Supplies current of positive voltage to the analog circuit
68	TBC	I	Switches coefficient banks for the tracking filter
69	EFM	I	Input pin for the EFM signal
70	HOLD	I	Input pin for the hold control signal
71	RFOK	I	Input pin for the RFOK signal
72	MIRR	I	Input pin for the MIRR signal
73	A.GND		GND for the analog circuit
74	HOME	I	Home position detector input
75	VR1	I	The signal input through these pins is digitized to 8-bit by the A/D converter, which by operation of the assigned register, can be read into the microcomputer
76	FE	I	Inputs a focus-error signal from the RF amplifier
77	TE	I	Inputs a tracking-error signal from the RF amplifier
78	TEC	I	Input pin for the tracking comparator
79	REFOUT	O	Output point for midpoint potential for the A/D converter for the LSI portion
80	A.VDD		Supplies current of accurate voltage to the analog circuit

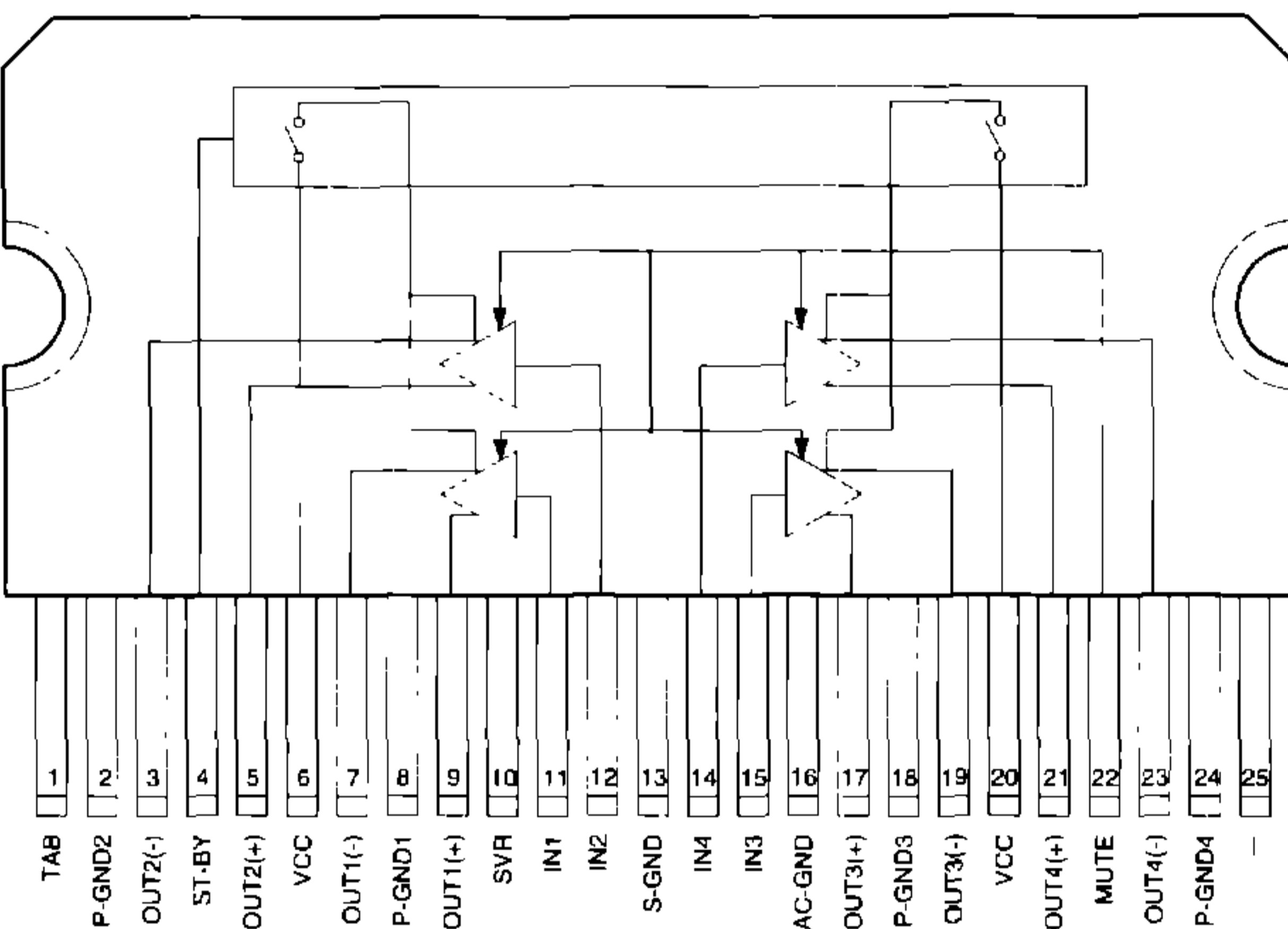
XLA6997FP



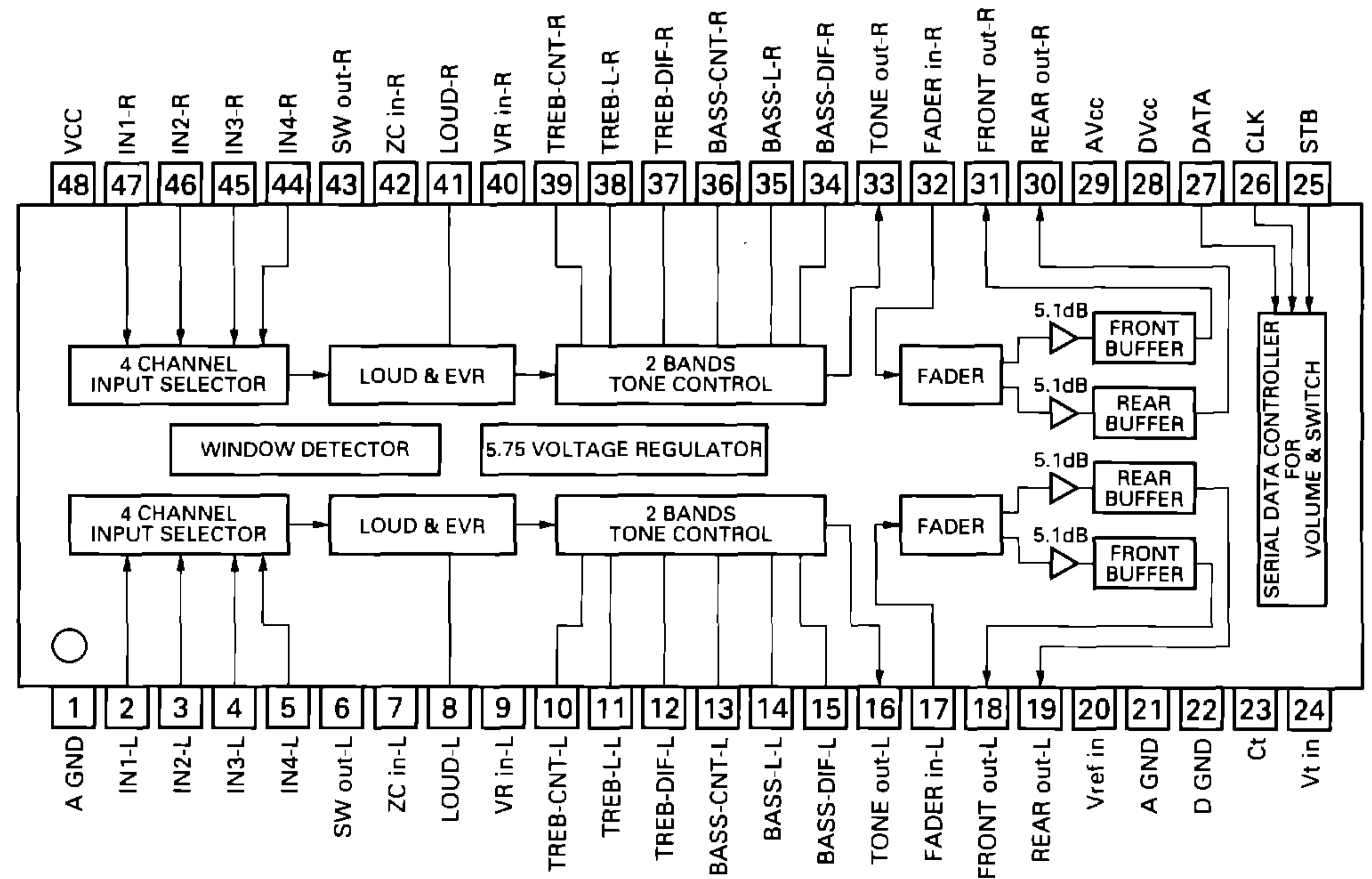
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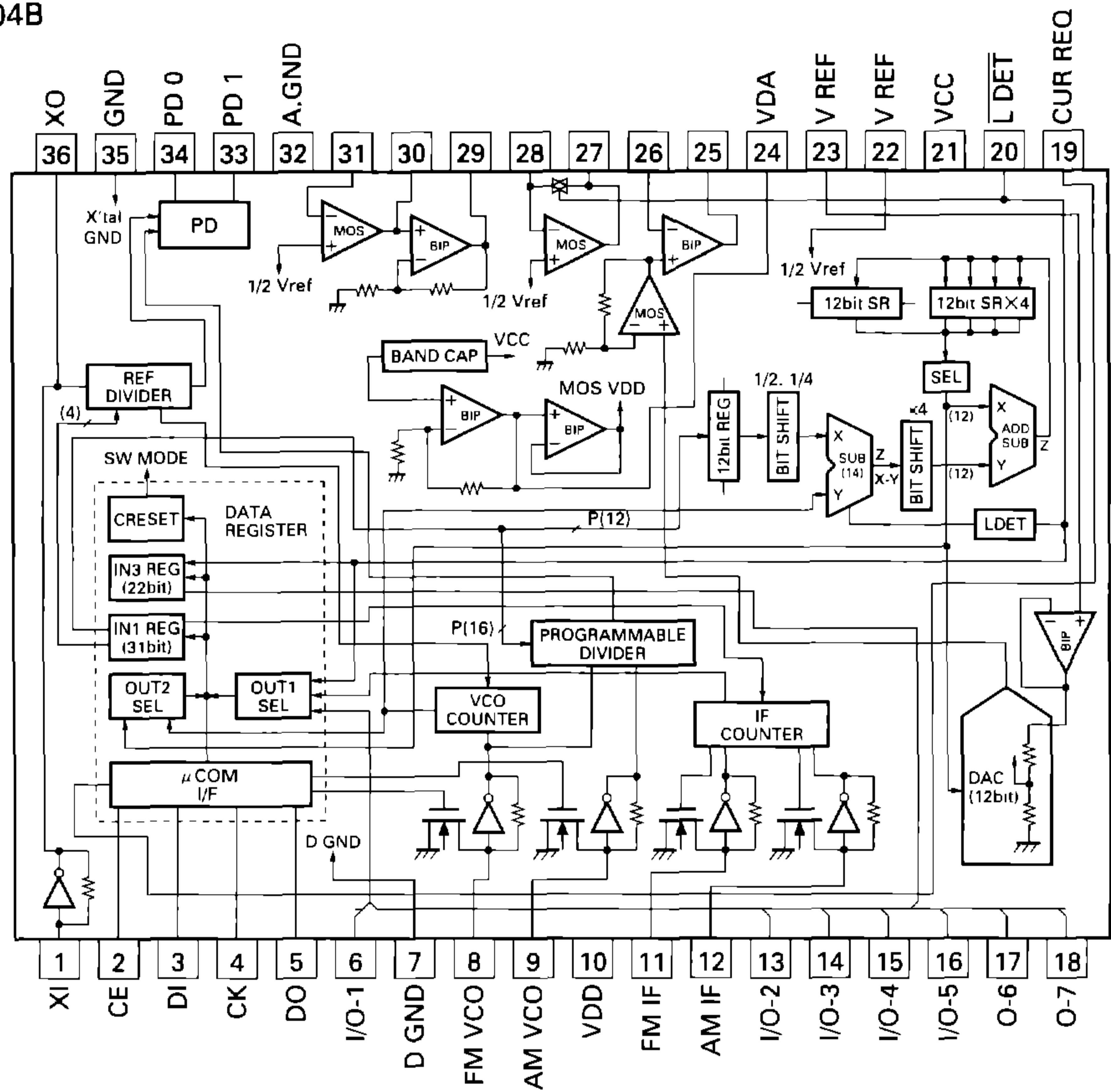
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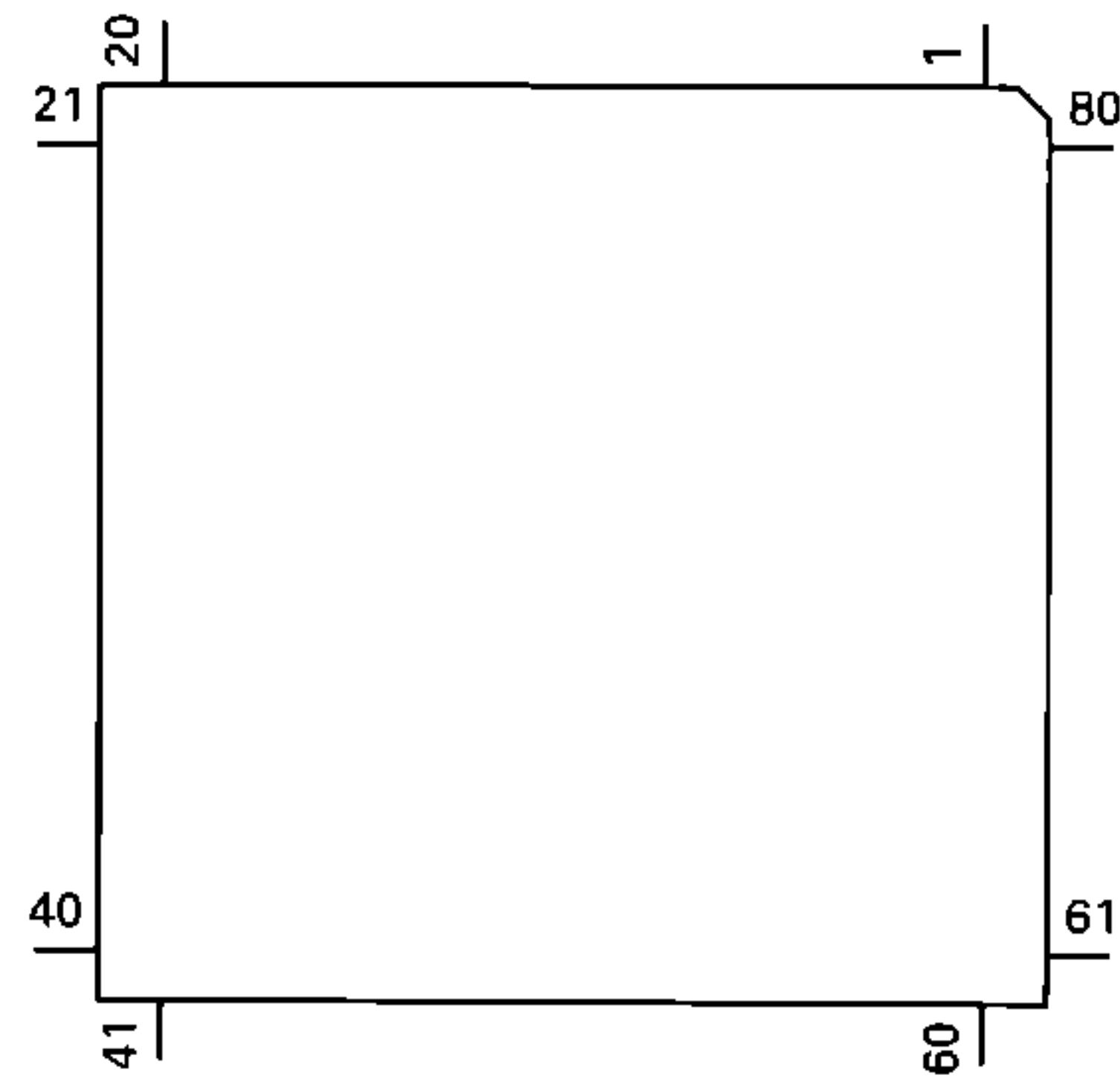


● Pin Functions (PDR027B)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	MODEL1	I		Model select input
2,3	NC			Not used
4	AVSS			GND
5	ST	I		FM stereo input
6	SD	I		SD input
7	AVREF1			A/D converter reference voltage
8	KYDT	I		Key data input
9	DPDT	O	C	Display data output
10	NC			Not used
11	PDI	I		Data input from PLL IC
12	PDO	O	C	Data output for PLL IC
13	PCK	O	C	Serial clock output for PLL IC
14	PCE	O	C	Chip enable output for PLL IC
15	CURRQ	O	C	Tuner voltage FIX output
16	XSI	I		Data input from CD mechanism module LSI
17	XSO	O	C	Data output for CD mechanism module LSI
18	XSCK	O	C	Clock output for CD mechanism module LSI
19	NC			Not used
20	AM	O	C	AM power control output
21	FM	O	C	FM power control output
22	VDCONT	O	C	VD control output
23	CONT	O	C	Servo driver power supply control
24	XAO	O	C	Command/Data output for CD mechanism module LSI
25	XRST	O	C	Reset output for CD mechanism module LSI
26	XSTB	O	C	Strobe output for CD mechanism module LSI
27	CLAMP	I		Disc clamp sense input
28	MIRR	I		Mirror detector input
29	FOK	I		Focus OK signal input
30	LOCK	I		Spindle lock detector input

Pin No.	Pin Name	I/O	Format	Function and Operation
31	CDLOAD	O	C	Load motor loading control output
32	NC			Not used
33	VSS			GND
34	CDEJET	O	C	Load motor eject control output
35	CD5VON	O	C	CD +5V power supply control output
36	DLED	O	N	Alarm LED output
37,38	MODEL2,3	I		Model select input
39,40	NC			Not used
41	SWVDD	O	C	Grille power supply control output
42	SYSPW	O	C	System power supply control output
43	ILMPW	O	C	Illumination power supply control output
44	MUTE	O	C	System mute output
45	PEE	O	C	Beep tone output
46	DOORH	O	C	Door system select output
47	DRSENS	I		Door open/close sense input
48	NC			Not used
49	VST	O	C	Strobe pulse output for electronic volume
50	VCK	O	C	Clock output for electronic volume
51	VDT	O	C	Data output for electronic volume
52-54	NC			Not used
55	DRELAY	O	C	External relay output
56	TUNPW	O	C	Tuner power supply control output
57	LPFSW	O	C	Output for FIE
58,59	NC			Not used
60	RESET	I		Reset input
61	LDET	I		PLL lock sense input
62	NC			Not used
63	ASENS	I		ACC power sense input
64	BSENS	I		Back up power sense input
65	DSENS	I		Grille detach sense
66	CLKIN	I		Clock input
67	NC			Not used
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1			Crystal oscillator connection pin
71	IC			Connect to GND
72	XT2			Not used
73	TESTIN	I		Test program mode input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF0			A/D converter reference voltage
76	SL	I		SD level input from tuner
77	TEMP	I		Temperature detect input
78	VDSENS	I		VD power supply short detection input
79	DSCSNC	I		Disc sense input
80	EJTSNC	I		Disc eject position sense input

*PDR027B

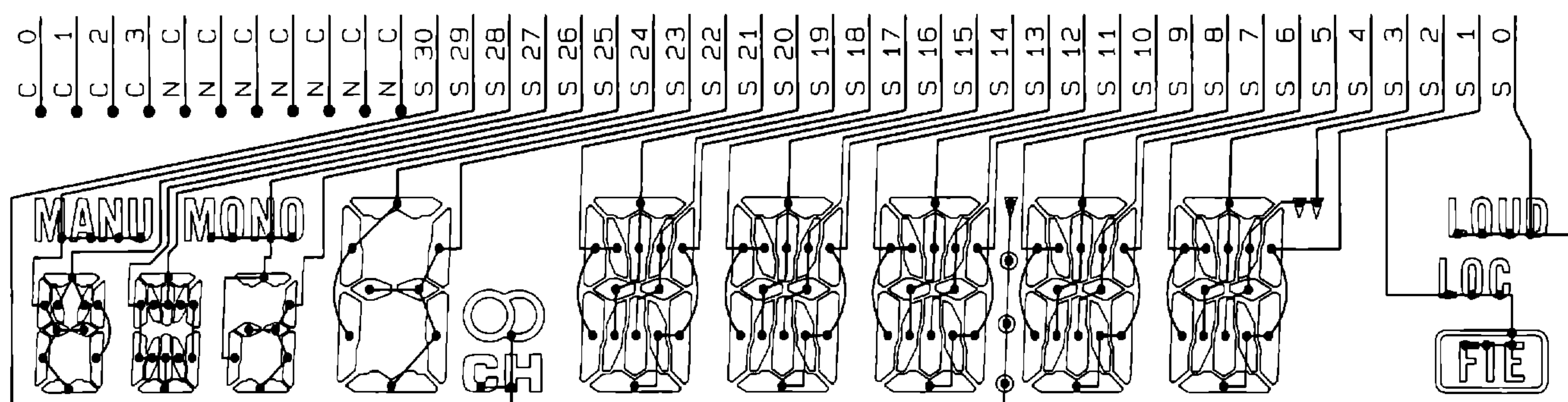


Format	Meaning
C	C MOS
N	N channel open drain

7.1.2 DISPLAY

● **CAW1330**

SEGMENT



COMMON

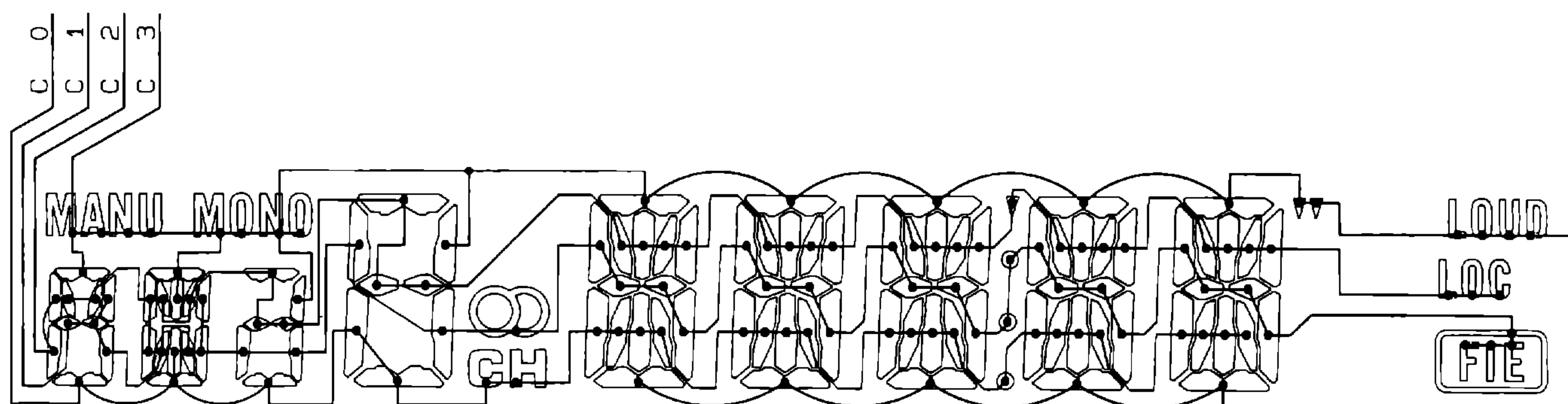


Fig. 30

7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● Removing the Case(Not shown)

1. Remove the two screws.
2. Insert and turn a flat screwdriver to remove the case.

● Removing the Detach Grille Assy(Fig.31)

(Except for DEH-235/X1M/UC, 236/X1M/ES)

1. Press the detach button, and then pull detach grille Assy.

● Removing the Panel Assy(Fig.31)

(Except for DEH-235/X1M/UC, 236/X1M/ES)

1. Disconnect the two stoppers and then remove the panel Assy.

● Removing the CD Mechanism Module (Fig.31,32)

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the CD Mechanism Module.

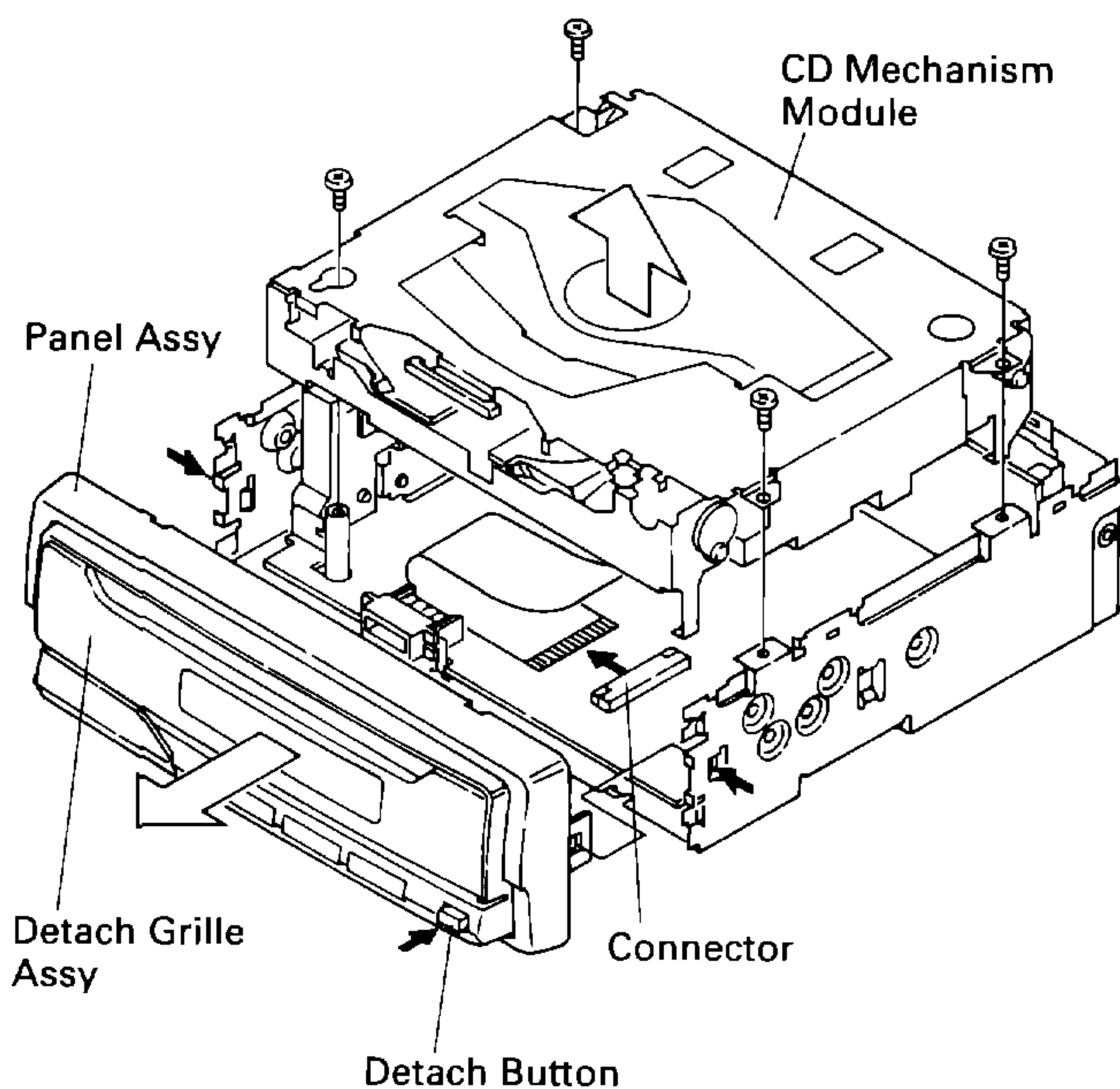


Fig. 31

● Removing the Grille Assy(Fig.32)

(DEH-235/X1M/UC, DEH-236/X1M/ES)

1. Disconnect the connector.
2. Disconnect the two stoppers indicated by arrows, and then remove the grille Assy.

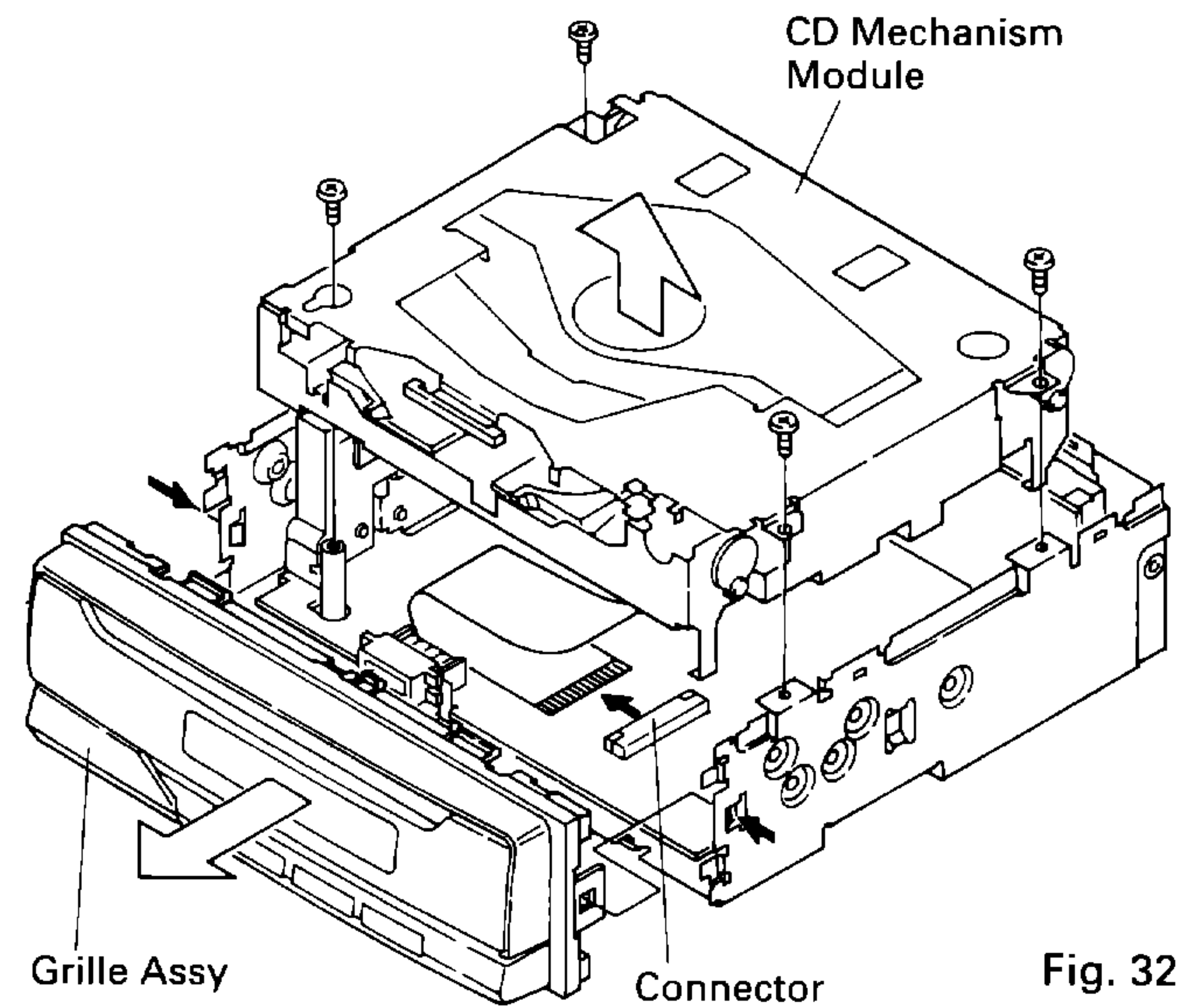


Fig. 32

● Removing the Chassis Unit(Fig.33)

1. Remove the screw A, screw B, screw C and two screws D.
2. Stretch the five claws.
3. Remove the cord, and then remove the chassis Unit.

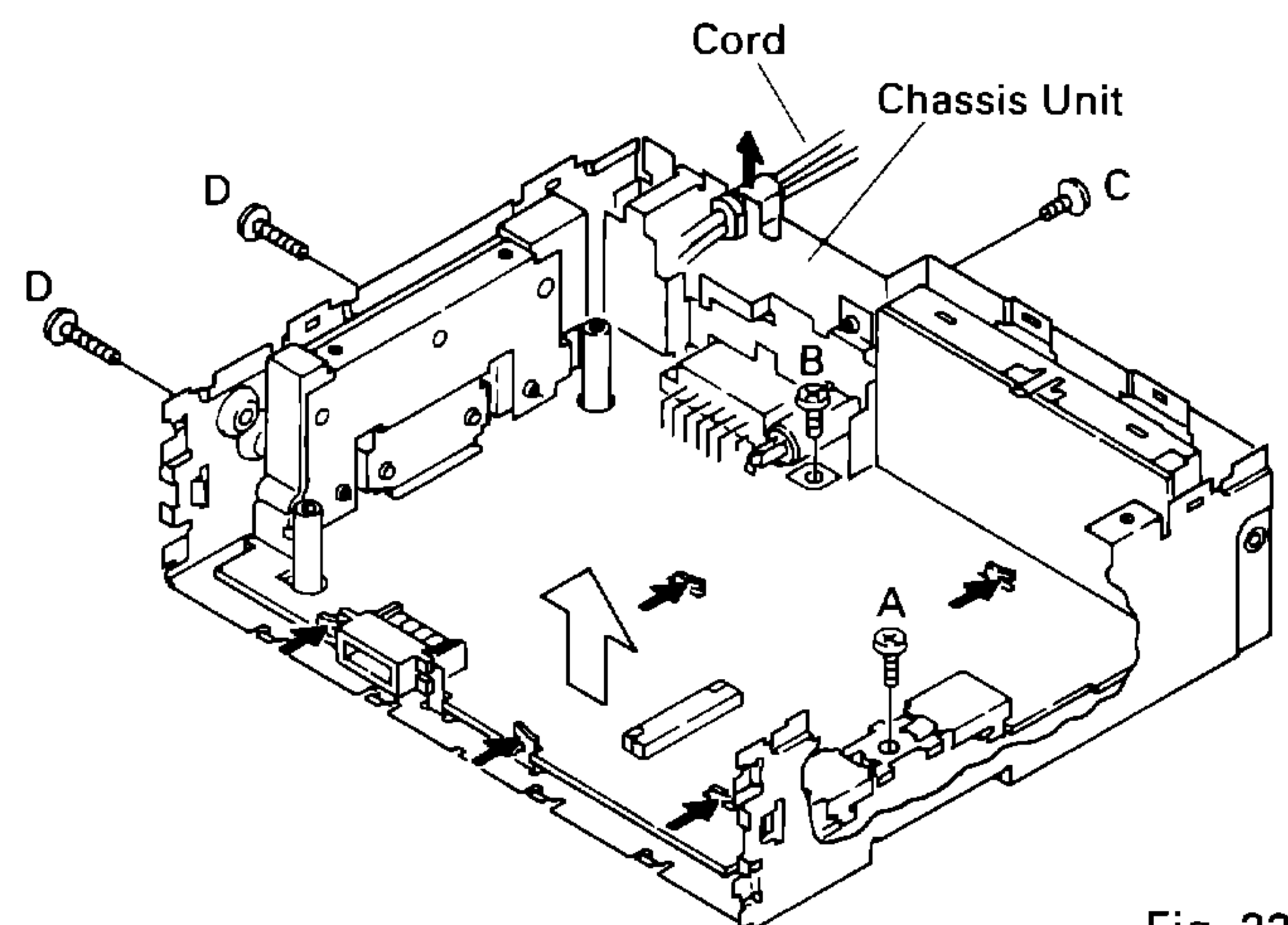


Fig. 33

7.2.2 TEST MODE

● Error Number Indication

If the CD should fail to operate or if an error has taken place during operation the player will enter into the error mode, and the cause of the error will be numerically indicated.
This is aimed at assisting in analysis or repair.

(1) Basic Means of Display

- With ERROR indicated in "MODE" on IP-BUS Display data, an error code is transmitted by the use of MIN and SEC.
The MIN and SEC data will be identical.
- Examples of Display ER-XX

(2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	SETUP failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
19	ELECTRIC	Set up failure	Tracking error waveform is too unbalanced (>50%) or level is too small →The P.U.unit or tracking error circuitry is N.G.
30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal

"defects" means scratches, dirt etc an the surface of the disc.

● New Test Mode(aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disk number).
During the setup, the CD software operation status (internal RAM and C-point)is displayed.

(1) How to enter NEW TEST Mode

See the test mode flow chart Page 65.

(2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
TR+	—	FWD-Kick	TRACK+ / FF	—
TR-	—	REV-Kick	TRACK- / REV	—
1	—	Tracking close	SCAN	—
2	—	Tracking open	REPEAT	—
3	—	Focus close	RANDOM	—
MANU	To New Test Mode Select	Focus Mode	AUTO/MANU	TRACK No./ time of occurrence select

Operations, such as EJECT, CD ON/OFF, etc. are performed normally.

(3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 100ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

(4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, Home switch failed
03	Carriage moving outwards	10-second time out, Home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10,14	Waiting for focus closure (FOK=H)	Failure to close focus
15, 16, 17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, Failure to lock, Failed to read subcode

5) Example of Display.

·SET UP in progress
Auto

TNo.
11

Manual

Min	Sec
11	11

·Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

·Protection/Error upon occurrence

(a)Error number indicated

ER-xx

Select the display with the BAND key.

(b)Track number indicated

TNo
10

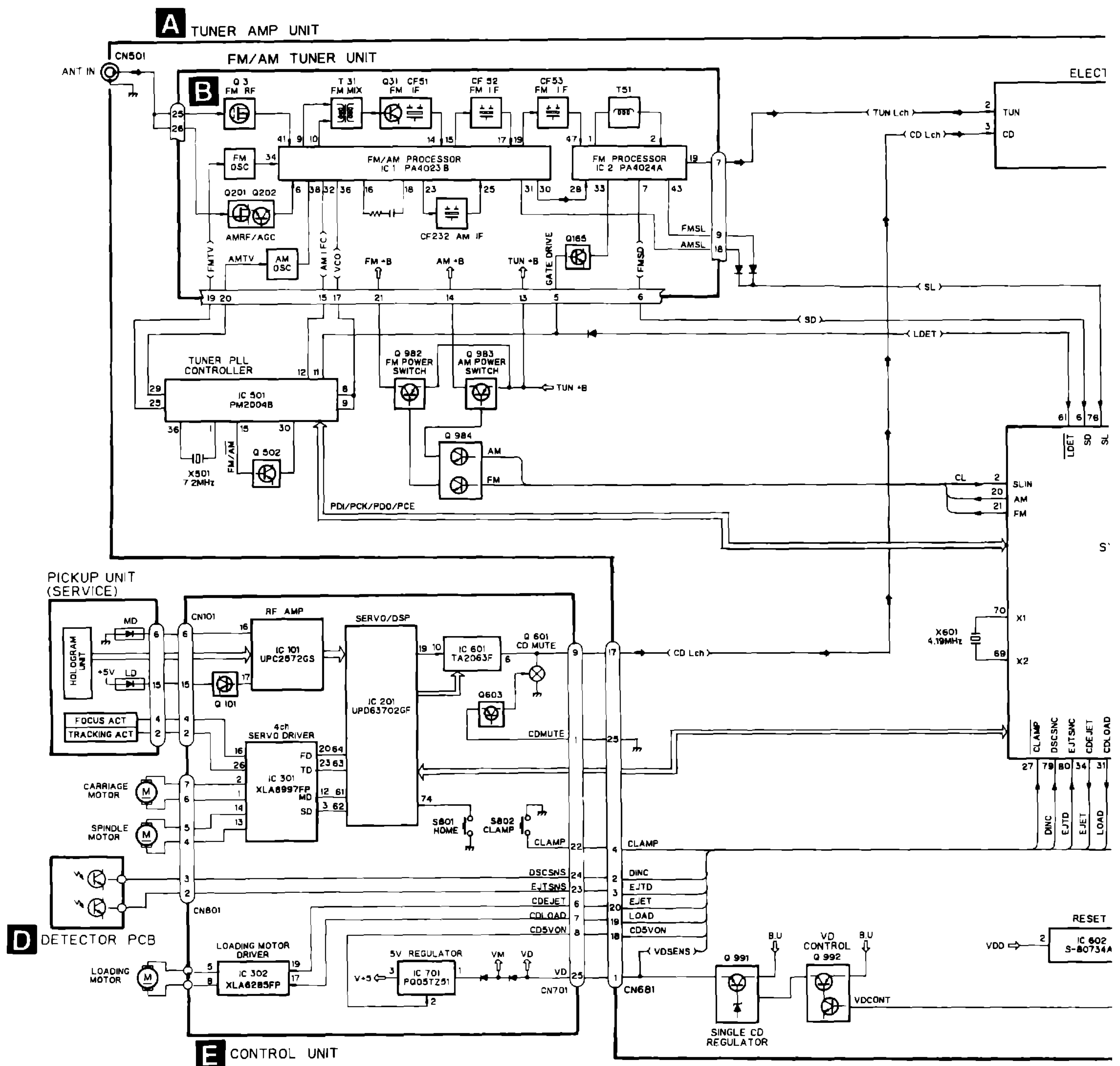
(c)Absolute time indicated

Min	Sec
40	05

Select the display with the MANU key.

7.3 BLOCK DIAGRAM

● **DEH-48/X1M/UC**



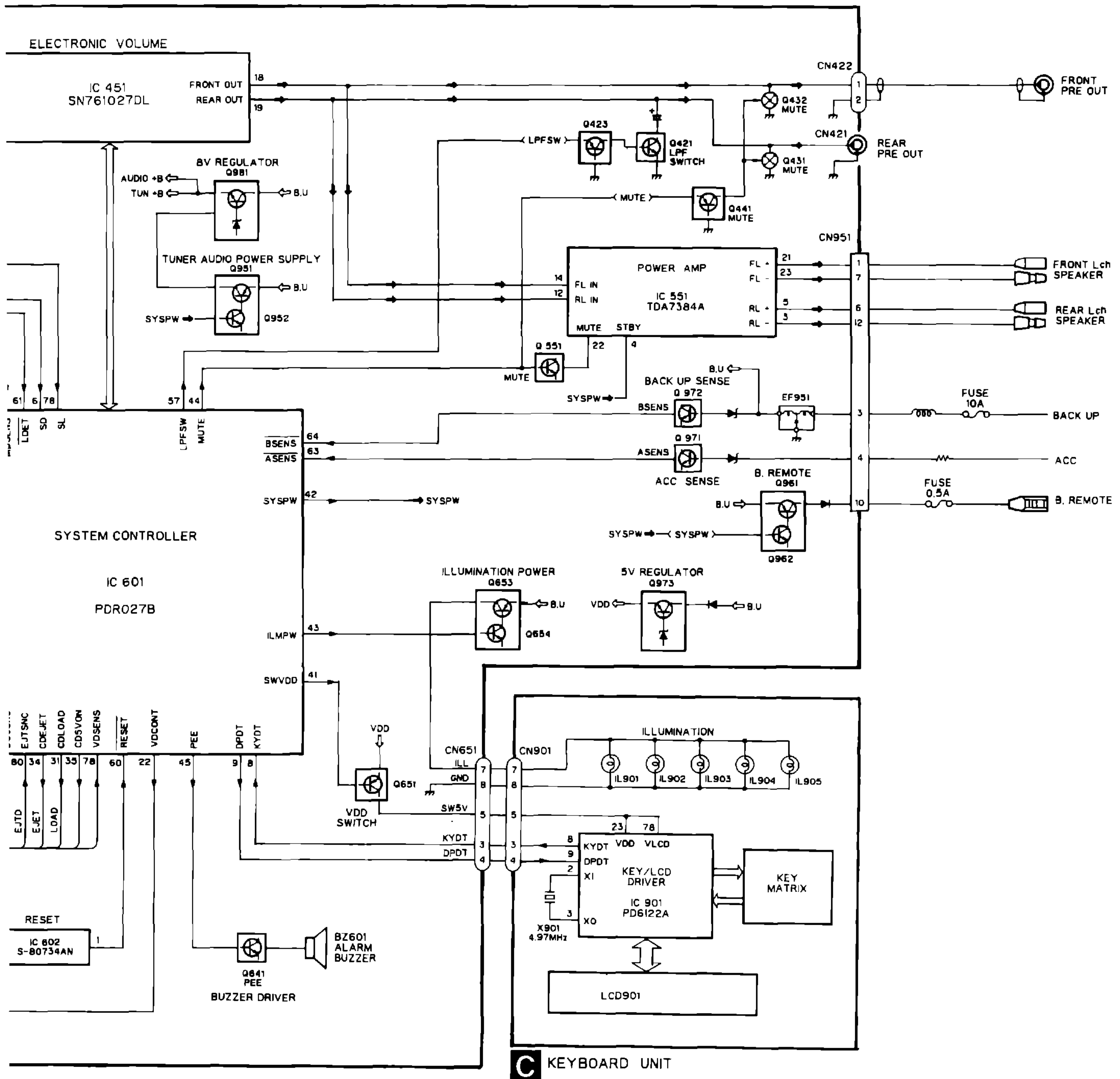


Fig. 34

8. OPERATIONS AND SPECIFICATIONS

● Connection Diagram

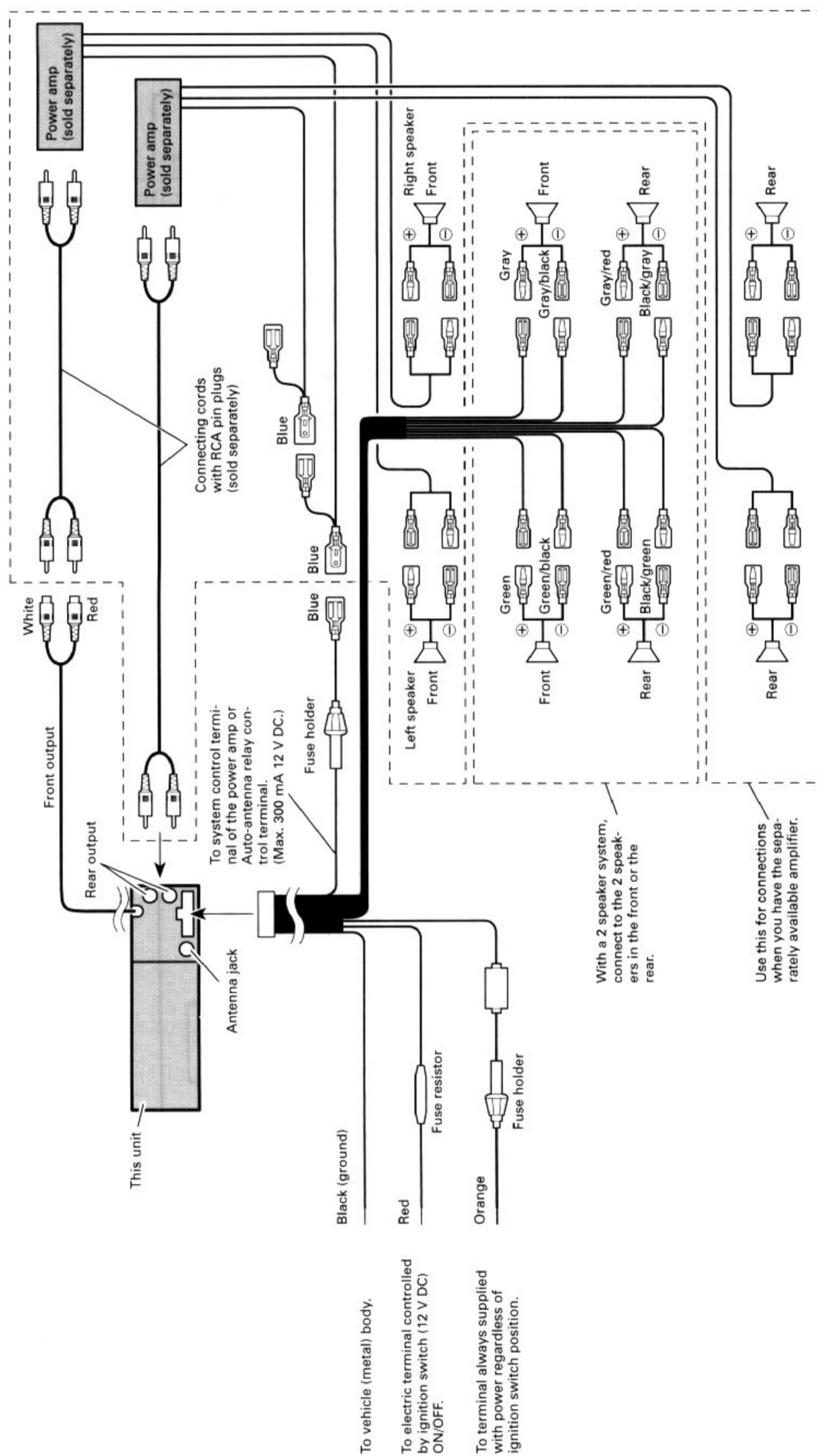


Fig. 35

Audio Adjustment

The audio modes are selected for adjustment with the S button. Volume adjustment is the default mode. When another mode is selected for adjustment, the setting returns to the Volume mode after 8 seconds.

Volume Adjustment

- Press the (+) button or the (-) button repeatedly to raise or lower the volume.

The display shows low to high volumes from "VOL00" to "VOL30."

Note: Holding down the buttons increases or decreases the volume level more rapidly.

Using the F. I. E. function

The F. I. E. (Front Image Enhancer) function is a simple method of enhancing front imaging by cutting mid- and high-range frequency output from the rear speakers, limiting their output to low-range frequencies.

Note: When the F. I. E. function is deactivated, the rear speakers output sound in all frequencies, not only bass sounds. Reduce the volume before disengaging F. I. E. to prevent a sudden increase in volume.

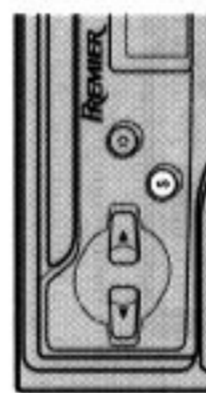
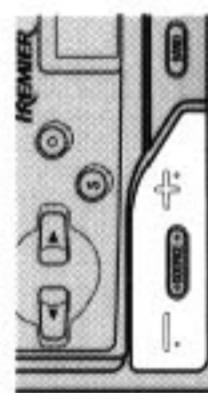
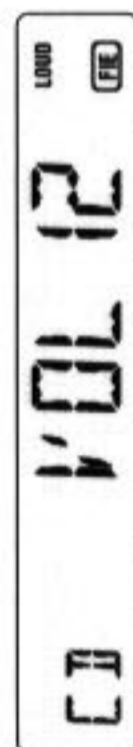
- Press the S button once to select the F. I. E. mode.

"FIE" appears on the display.

After adjustment use the S button to return to the normal display.

- Press the (▶) button to activate the F. I. E. function.

"FIE" is displayed and "FIE" indicator lights on the display.



Tuner Operation

Tuner Source and Band

- Push the SOURCE button to select Tuner. The Frequency appears on the display. ("CD" indicator lights when stereo station selected.)

- Use the BAND button to select the desired band. (FM1, FM2, FM3, AM)

Manual and Seek Tuning

Both Manual (step-by-step) and Seek (automatic) tuning are available.

- Press the MANU button to switch alternately between the Manual and Seek tuning modes. The "MANU" indicator lights when Manual tuning is selected and turns OFF when Seek tuning is selected.

- Press the (▶) button to tune the receiver to a higher frequency.

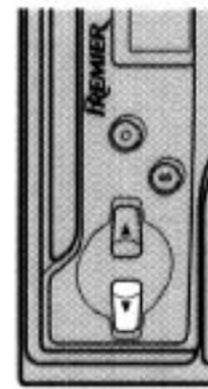
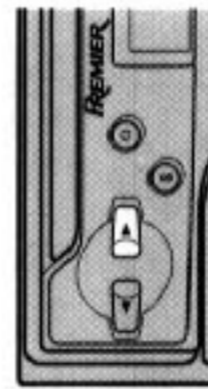
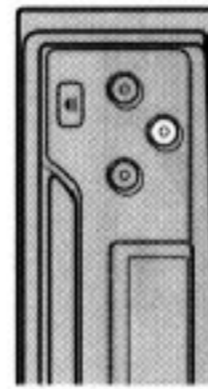
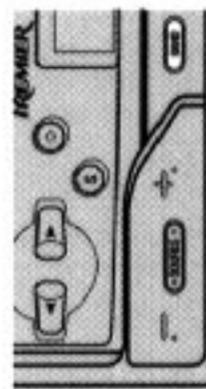
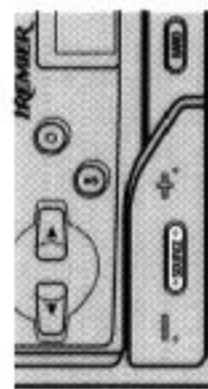
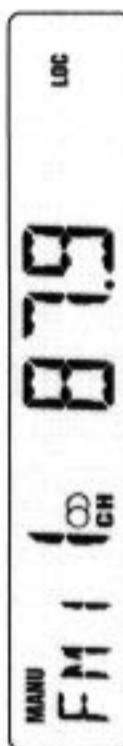
MANU ON (Manual tuning):

The frequency changes step by step.

MANU OFF (Seek Tuning):

The tuner automatically seeks out and receives broadcasting stations.

- Press the (◀) button to tune the receiver to a lower frequency.



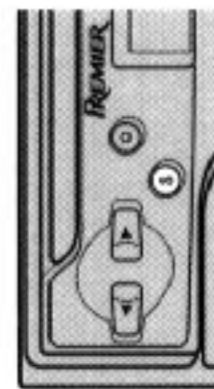
Audio Adjustment

Bass/Treble Adjustment

This tuner/CD player is equipped with two tone adjustment modes, the Bass Adjustment and Treble Adjustment modes.

1. Press the **S** button 3 times to select tone adjustment mode.

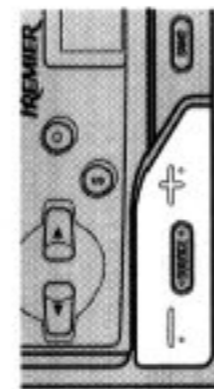
"BAS" or "TRE" appears on the display. After adjustment use the **S** button to return to the normal display.



2. Press the (◀) button or the (▶) button to select "Bass Adjustment mode" or "Treble Adjustment mode".



3. Press the (+) button or the (-) button, respectively, to increase or decrease the intensity of the bass or treble, whichever is selected. The display shows "+6" ~ "-6".

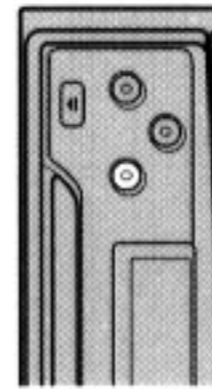


4. Repeat steps 2-3 above for the other Bass or Treble Adjustment mode.

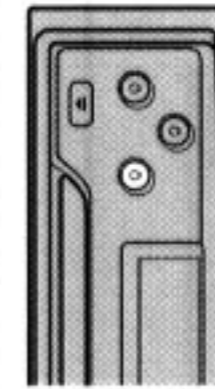
Loudness Adjustment

The Loudness function compensates for deficiencies in the low and high sound ranges at low volume.

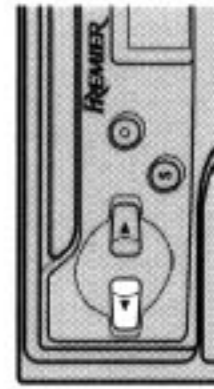
- Press the **LOUD** button to activate the Loudness function. "LOUD" indicator lights.



- To cancel the Loudness function, press the **LOUD** button again.

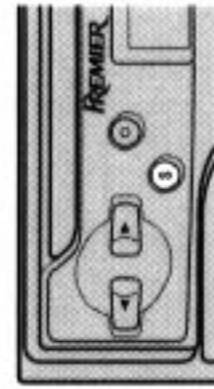


- To cancel the **F. I. E.** function, press the (◀) button. "FIE" indicator OFF.



3. Use the **S** button to select the Fader/Balance mode.

This function adjusts the front and rear speaker volumes for better balanced listening. (Refer to next section.)



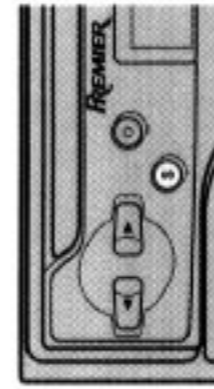
Balance Adjustment

The function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. Press the **S** button 2 times to select the Fader/Balance mode.

"F-" or "B-" appears on the display.

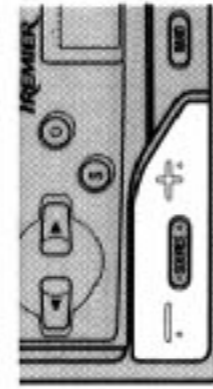
After adjustment use the **S** button to return to the normal display.



2. Press the (+) button or the (-) button to shift the balance progressively to the front or rear speakers.

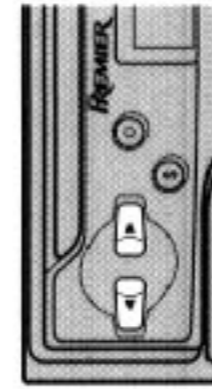
"F-F15" ~ "F-R15" is displayed as it moves from front to rear.

Note: "F-0" is the proper setting when 2 speakers are in use.



3. Press the (◀) button or the (▶) button to shift the balance to the left or right speaker, respectively.

"B-L9" ~ "B-R9" is displayed as it moves from left to right.



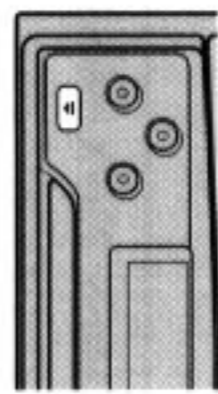
Using the Built-in CD Player

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.



Inserting and Removing Discs

- **Insert the disc with the recorded (iridescent) surface down.**
CD playback begins immediately, whether or not the player is ON or the built-in CD source selected. The track number and playing time are displayed.
- **Press the Eject button to eject any disc loaded in the disc slot.**

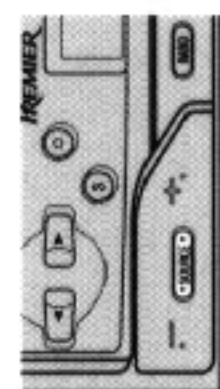
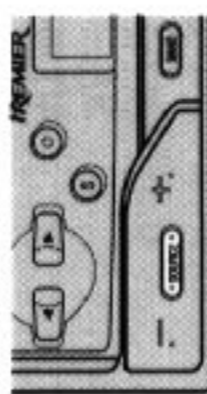


Playing the Built-in CD player

- **To play a CD that is already loaded, press the SOURCE button with a CD loaded to select the built-in CD player.**

The built-in CD player is selected only when a CD is loaded.

Note: See "Audio Adjustment" on pages 12-14 for volume and tone adjustment.



- **To stop CD playback, press the SOURCE button to select the tuner or turn the source OFF.**

When the built-in CD player is selected again, playback begins at approximately the same place (track/playing time).

Precaution:

- * Inserting more than one disc at a time may damage the built-in CD player.
- * Discs left partially inserted after ejection may incur damage or fall out.
- * If a disc cannot be inserted fully or playback fails, make sure the recorded side is down, push the Eject button and check the disc for damage before reinserting it.
- * If a CD is inserted with the recorded side up, it will be ejected automatically after a few moments.
- * If the built-in CD player cannot operate properly, an error message (such as ER-14) appears on the display. Refer to "CD Player Troubleshooting".

CD Player Troubleshooting

When problems occur with CD playback, an error message appears on the display. Refer to the table below to identify the problem, then take the suggested corrective action. If the error persists, contact your dealer or your nearest PIONEER Service Center.

Message	Possible cause	Recommended action
ER- 11, 12, 14, 17, 30	Dirty disc.	Clean the disc.
ER- 11, 12, 17, 30	Scratched disc.	Replace the disc.
ER- 14	Unrecorded CD.	Check the disc.
ER- 10, 11, 12, 14, 17, 30, A0	Electrical or mechanical problem.	Turn the ignition ON and OFF, or switch to a different source, then back to the CD player.
HEAT	CD player overheating.	Discontinue play until the machine temperature drops.

Specifications

General

Power source	14.4 V DC (10.8 — 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions	
(DIN) (chassis)	178 (W) × 50 (H) × 150 (D) mm
(nose)	[7 (W) × 2 (H) × 5-7/8 (D) in.]
	188 (W) × 58 (H) × 22 (D) mm
(D)	[7-3/8 (W) × 2-1/4 (H) × 7/8 (D) in.]
(chassis)	178 (W) × 50 (H) × 155 (D) mm
(nose)	[7 (W) × 2 (H) × 6-1/8 (D) in.]
	170 (W) × 48 (H) × 17 (D) mm
	[6-3/4 (W) × 1-7/8 (H) × 5/8 (D) in.]
Weight	1.5 kg (3.3 lbs)

Amplifier

Continuous power output is 15 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	35 W × 4
Load impedance	4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance	500 mV/ 1 kΩ
Tone controls	
(Bass)	±12 dB (100 Hz)
(Treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100 Hz), +7 dB (10 kHz) (volume: -30 dB)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 — 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz)(IHF-A network)
Dynamic range	90 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range(Except for DEH-436/X1M/ES, 236/X1M/ES)	87.9 — 107.9 MHz
Frequency range(DEH-436/X1M/ES, 236/X1M/ES)	87.5 — 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA)
Three-signal intermodulation (desire signal level)	50 dBf (two undesire signal level: 110 dBf)

AM tuner

Frequency range(Except for DEH-436/X1M/ES, 236/X1M/ES)	530 — 1,710 kHz
Frequency range(DEH-436/X1M/ES, 236/X1M/ES)	531 — 1602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.